SEPTEMBER 12, 1960

PAPER TRADE JOURNAL

New Capacity Proves Success of Lignosol's Sulphite By-Products

How 2 Men Can Feed 16 Grinders By Swedish Wood Handling Method

Asphalt Paper Stock Users Have Choice of 4 Dispersion Systems

Finnish Mill Has Used Plastic Fourdrinier Wires for 5 Years!

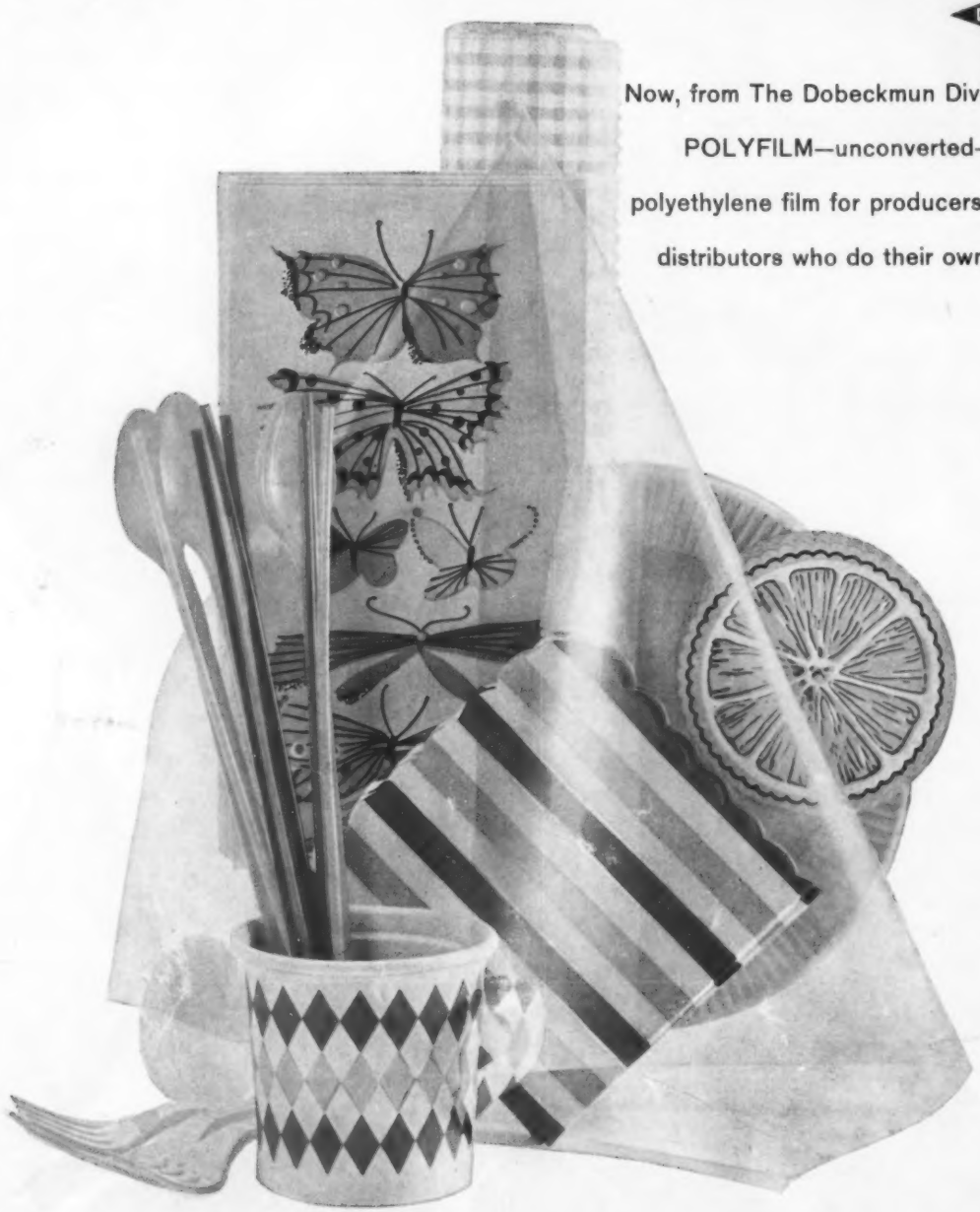
See Page 4

Editorial Dept.
University Microfilms, Inc.
313 N. First St.
Ann Arbor, Mich.

POLYFILM®

DOW

Now, from The Dobeckmun Division, POLYFILM—unconverted—a superior polyethylene film for producers and distributors who do their own packaging!



Wide acceptance proves POLYFILM to be the superior polyethylene film. One manufacturer after another is capitalizing on Polyfilm's unique features to give his products instantaneous shelf appeal. In the paper industry, toilet tissue, shelving paper, picnic plates and cups are all being packed in POLYFILM—and selling better because of it. POLYFILM has constant gauge, unequalled machinability, fully controlled wind-up. One close look tells you it is glossier, clearer. POLYFILM will not absorb moisture from paper products, will not become brittle; products stay fresh longer.

Those using POLYFILM know of another important advantage—free and easy access to DOBECKMUN'S vast experience in the field of flexible packaging—yours, too, for the asking. Why not write today for fuller information?

THE DOBECKMUN COMPANY

DOW

A Division of The Dow Chemical Company, Cleveland 1, Ohio • Berkeley 10, California • Offices in most principal cities.

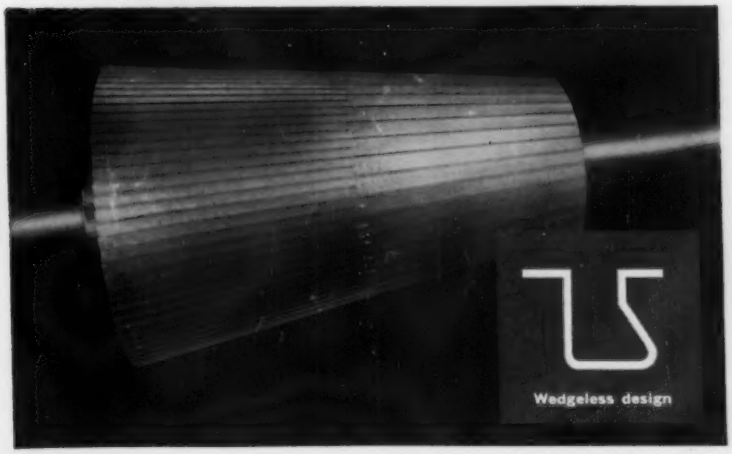
ONLY EMERSON WEDGELESS PLUGS CAN PASS THIS TEST

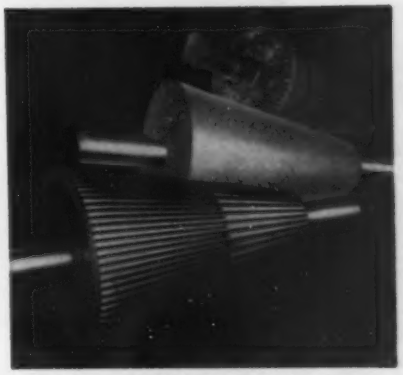
- because only Emerson Plugs have these design advantages!

Before You Buy Another Jordan Plug
Check the Answers to these Questions

Question	Emerson Wedgeless Plugs	Other Plugs
Are plugs available in stainless steel?	YES	NO
Are plugs easy to strip and fill because of bandless construction and only one knife to a slot?	YES	NO
Can a full range of knives — both single and duplex — be used interchangeably in the same plug?	YES	NO
Does the design provide impact cushions between the base of the knives and the bottom of the slots?	YES	NO
Is there ¾" of wear depth available on all knives for long periods of Jordaning?	YES	NO
Can used plugs be jacketed with stainless steel?	YES	NO
Do bars have the advantage of Microlyzing based upon 40 years experience in custom heat treating?	YES	NO

These exclusive features are found *only* in Emerson Wedgeless Plugs. In addition, the unique design of Emerson Plugs gives you precision milled, equally-spaced slots so that when the plug is filled, *all* stock gets thorough, uniform treatment over the entire plug surface. Metal-to-metal contact in the slots adds strength and supports the knives their entire length.





Hundreds of mills have gained the advantages of Wedgeless Plug design by having their used plugs jacketed with Stainless Steel through Emerson's patented process.

DURABILITY UNMATCHED

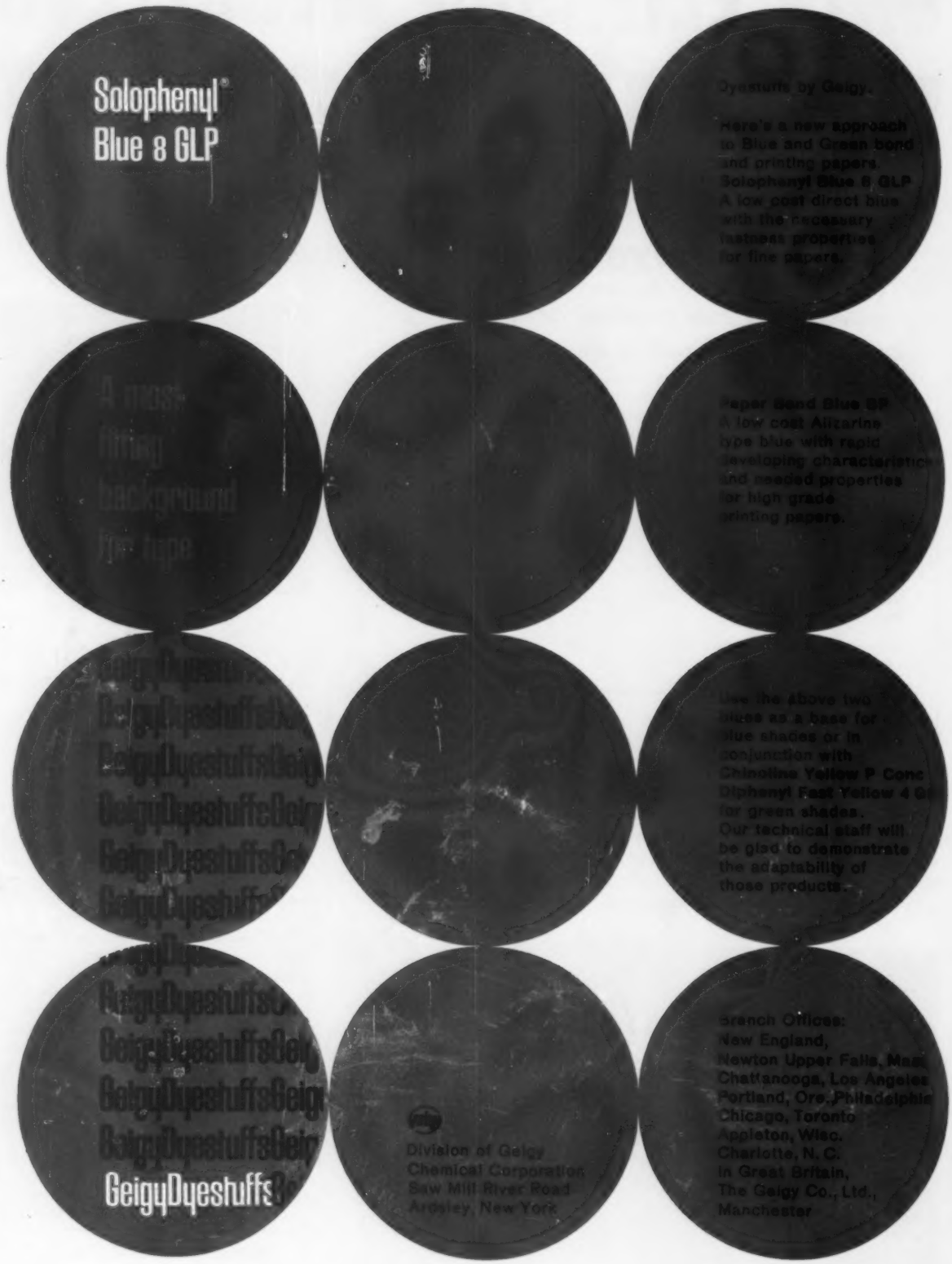
When it comes to wear resistance and durability, try matching the high tensile strength of materials used in Wedgeless Plugs with those of other plugs: Special Stainless Steel — 125,000; Fabricated Steel — 75,000; Cast Iron — 57,500. For additional plug strength, a hammered forged steel shaft is pressed into the Emerson plug body under 60-ton hydraulic pressure. No wonder Emerson Wedgeless Plugs are stronger — more durable and serviceable than any other plugs — and specified by more papermakers.

Over thirty years ago Emerson Wedgeless led the field in Jordan plug design. It still leads today. It has never been equalled. Use Emerson Wedgeless Plugs. Buy the best. Save money, time and trouble. You have a choice of cast or fabricated plugs . . . Stainless Steel Jacket on Cast Steel body . . . Stainless Steel Jacket mounted on your old plug. *And remember, of the hundreds of used plugs jacketed with stainless steel,* ***not one has ever failed in service.*** For full information, write.

An exclusive product of

BOLTON EMERSON
TRADE MARK

The Emerson Manufacturing Co.
Division of John W. Bolton & Sons, Inc.
Lawrence, Massachusetts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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

Week of September 12, 1960—Vol. 144, No. 37

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Published by Lockwood Trade Journal Co., Inc., at 34 N. Crystal St., East Stroudsburg, Pa. Second class postage paid at East Stroudsburg, Pa. Printed in U.S.A. Copyright 1960 by Lockwood Trade Journal Co., Inc. Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1899. Paper established Sept. 21, 1919, combined with Paper Trade Journal February 19, 1920.

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REMEMBER THESE DATES

September 18-21, NPTA Semi-Annual Convention, Conrad Hilton Hotel, Chicago, Ill.
October 5-7, TAPPI Deinking Conference, Conway Hotel, Appleton, Wis.
October 17-21, National Safety Congress, Conrad Hilton Hotel, Chicago.

SUBSCRIPTIONS →

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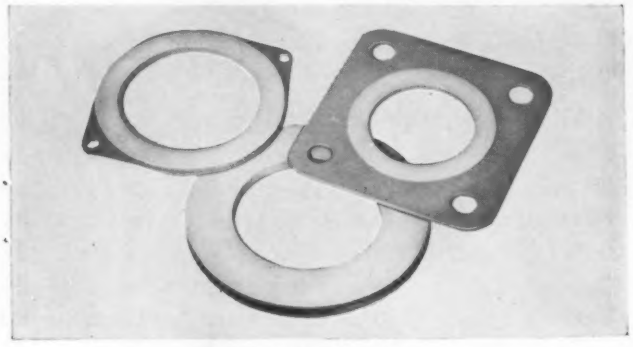
ENGINEERED TEFLON† PRODUCTS for Paper Mills

Lattice-Braid Teflon Packings



Teflon-jacketed Gaskets

LONG, TROUBLE-FREE SEALING AGAINST CORROSIVE LIQUORS, CHEMICALS

Here are two natural suggestions for sealing reactive materials . . . sealing that won't leak, that lasts with little maintenance, that won't contaminate the material being processed:

Garlock Lattice-Braid* Teflon Packings are engineered for strength, long life and are chemically inert. Less gland pressure is required to effect an adequate seal, resulting in longer sleeve and packing life, less downtime and maintenance. Add to these features the advantages of Teflon: completely unaffected by the strongest acids, solvents, and alkalies; extremely low coefficient of friction; non-contaminating; withstands temperatures ranging from −120° to +500°F. In Lattice-Braid construction each strand passes diagonally through the body of the packing at a 45° angle. This through-and-through braiding makes a completely unified structure of greater strength. Ordinary braided packings become worthless once the single outer braid is worn through. On Lattice-Braid, there is no single outer braid; the braiding, therefore, holds together far beyond the limits of other packings, resulting in longer life. Apply to pumps and engines. Catalog AD-131.

Garlock Teflon-jacketed Gaskets give you the advantage of using Teflon without sacrificing resiliency and deformability . . . particularly important on processing equipment piping, flanges and fittings. Garlock offers Teflon-jacketed gaskets in four basic designs—slit envelope, milled envelope, formed shield, and double jacket. Once you've selected the design best suited for your application, choice of filler material and thickness of the gasket become extremely important. Here, too, Garlock has a material for every operating condition—for high pressures, a corrugated stainless steel filler is suggested. Where the application is for low bolt loads, a rubber filler should be sandwiched between woven asbestos cloth. Cork, rubber, asbestos are just a few of the filler types available. Catalog AD-154.

For more complete information, call your Garlock representative. He's located at the nearest of Garlock's 26 sales offices and warehouses throughout the U.S.

GARLOCK

and Canada. Or, write Garlock Inc., Palmyra, N.Y.

Canadian Div.: Garlock of Canada Ltd.

Plastics Div.: United States Gasket Company

Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded & Extruded Rubber, Plastic Products

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†DuPont Trademark for TFE Fluorocarbon Resin

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The Black-Clawson Company—long recognized as the leader in the design and manufacture of machinery to satisfy the complete needs of the paper industry invites applications from interested and skilled engineers and designers.

In our Five Manufacturing Divisions the problems and challenges of every phase of paper making—from initial pulping and stock preparation to finished coating and plastic lamination, are met and answered in our program of constant and aggressive product research, development and engineering.

At Black-Clawson, tradition is the springboard for progress, not a shackle on imagination. The Company's very enviable reputation has been built on the conviction that progress must come through creative engineering. Many of the products most valued by the Paper Industry were introduced on the market first by Black-Clawson because, in our organization, new ideas are a vital part of our program not an interruption to it.

If you would like to receive additional information concerning the advantages and opportunities in a career with Black-Clawson address your inquiry to:
Robert L. Cox, Director of Industrial Relations,
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PULP AND PAPER SITES IN THE SEABOARD SOUTHEAST

Every present indication points to the necessity for increased productive capacity in pulp and paper in the foreseeable future.

Nowhere are the fundamentals more favorable for this expansion than the Seaboard Southeast where we are growing timber faster than it is being used. More than 113 million acres of fast-growing forests insure for you an abundant source of low-cost pulpwood. Water for processing is equally plentiful.

Let us tell you about some of the fine sites available in this favored area.

Address: Warren T. White
Assistant Vice President
Seaboard Air Line Railroad Company
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Richmond, Virginia

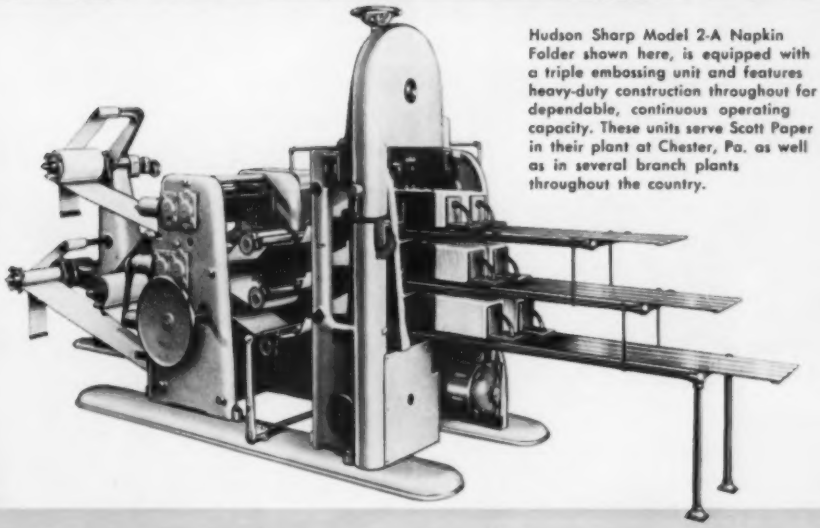
SCOTT PAPER COMPANY relies on FMC'S HUDSON SHARP equipment for high speed quality production of Scotkins

...Paper Table Napkins of Luxurious Linen-Like Quality

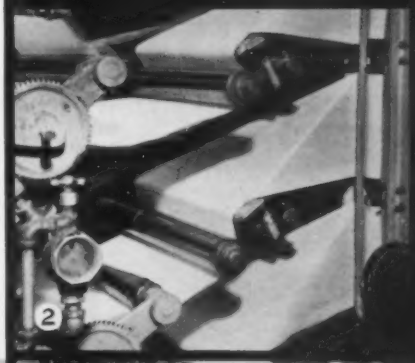
1 Production line of Hudson Sharp units shows "Scotkins" leaving folders for collating and delivery to automatic cartoning operations.

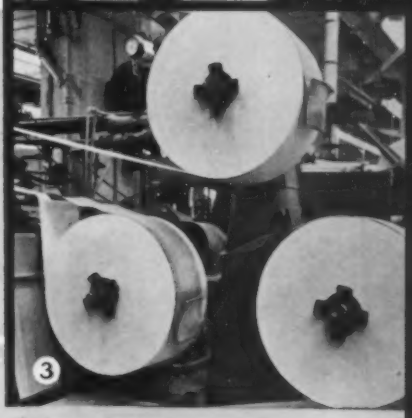
2 Three webs of "Scotkins" are processed simultaneously on Hudson Sharp Folders. Units handle both home and institutional type napkins.

3 Jumbo rolls of potential "Scotkins" stand ready for processing on Hudson Sharp's heavy-duty parent roll stands.



Hudson Sharp Model 2-A Napkin Folder shown here, is equipped with a triple embossing unit and features heavy-duty construction throughout for dependable, continuous operating capacity. These units serve Scott Paper in their plant at Chester, Pa. as well as in several branch plants throughout the country.





Helping to produce "Scotkins"—one of America's most popular, disposable, two-ply table napkins are a number of Hudson Sharp Napkin Folders. Rotary in operation, these machines process three parent rolls simultaneously and produce embossed "Scotkins" in excess of 1,000 napkins per minute. Scott Paper Company also uses these same machines for producing institutional napkins which require an additional fold.

Putting Ideas to Work

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION
FMC Packaging Machinery Division
Hudson-Sharp Machine Company
1201 MAIN STREET, GREEN BAY, WISCONSIN

WISCONSIN WIRE WORKS · APPLETON, WISCONSIN

CORROSIVE FUMES?

HANDLE THEM WITH THESE SPECIAL "BUFFALO" FANS

"Buffalo" Cast Iron Exhauster

"Buffalo" Fiber Glass Fume Fan

"Buffalo" Cast Iron Exhausters are built to withstand extreme corrosive conditions in the chemical process industries. High efficiency is the result of low-turbulence air flow design. This includes heavy-duty cast iron housings and cast inlet cones with integral inlet vanes. Non-overloading characteristics are preserved despite changes in system pressure. Available with direct motor drive, separate belt drive or package unit with adjustable pitch V-belt drive and motor mounted on adjustable base rails. Write us for full information.

"Buffalo" Resin-Bonded Fiber Glass Fume Fans are highly resistant to such chemical corrosives as acids, salts, gases, organic materials and others. They are suitable for temperature applications up to 300°F. The fan housing is constructed entirely of fiber glass. All exposed parts of the factory-balanced rotor are encased in thick fiber glass. Standard capacities range up to 34,000 cfm at pressures to 10" static. Investigate the advantages of "Buffalo" Type "FG" Fume Fans—versatility, lighter weight, reasonable cost, dependability. Write for Bulletin FI-511.

These two specialized fans are representative of the air handling units engineered by the Buffalo Forge Company to help you combat the corrosive fumes encountered in many industrial processes. In addition to these fans, "Buffalo" offers rubber lined fans, fans with other special coatings and a comprehensive line of air cleaning units.

For complete details on "Buffalo" corrosive fume handling units, contact your "Buffalo" engineering representative or write us direct.

AIR HANDLING DIVISION

BUFFALO FORGE COMPANY

Buffalo, New York

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

'Buffalo' Air Handling Equipment to move, heat, cool, dehumidify and clean air and other gases.

'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

*Idea submitted by James H. Ozias, Jr., Oxford Paper Co., West Carrollton, Ohio Photo by: Kaufman & Fabry

The Mission of San Juan de Capistrano near Los Angeles, to which the swallows have returned year after year — for centuries.

HAM FELTZ says:

"The Swallows of Capistrano remind me of HAMILTON Felts . . . they're dependable too!"

"Just as you can count on the return of the swallows to Capistrano, you can count on Hamilton Felts for consistent, high quality performance and economical long life — order after order".

"Yes — not only have hundreds of papermakers proved Hamilton Felts best for their needs, they know they can reorder — by mail, telegraph or phone — and count on the same custom made, pre-shrunk, pre-sized, high quality Hamilton Felt time, after time, after time."

If one of our present 300 proven styles won't solve *your* specific problem, you can depend on us to design a Hamilton Felt that will. Just write us to contact your Hamilton Felts Service Salesman.

*WIN . . . *A NEW Shakespeare Spincast Fishing Outfit!*

"What famous place reminds you of Hamilton Felts? Tell us why in a few words; sign your name and address and name of company. Each month, the idea from a papermaker that we use wins a new 1960 model Shakespeare Spincast Rod and Reel—FREE! When identical winning ideas are submitted by 2 or more papermakers, the one with the earliest postmark will be considered the winner. *Every U.S. papermaker entrant* receives a famous Rex Spoon fishing lure—FREE. Send me your suggestion—today. Ham Feltz, 612 First National Bank Bldg., Cincinnati 2, Ohio."

YOU CAN'T BEAT

Hamilton

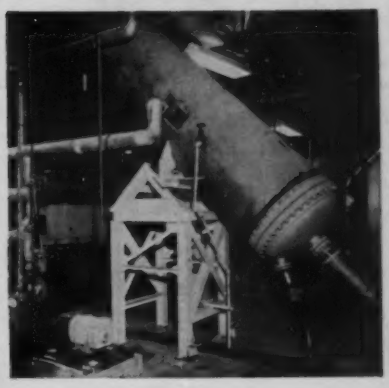
FELTS

SHULER & BENNINGHOFEN, HAMILTON, OHIO

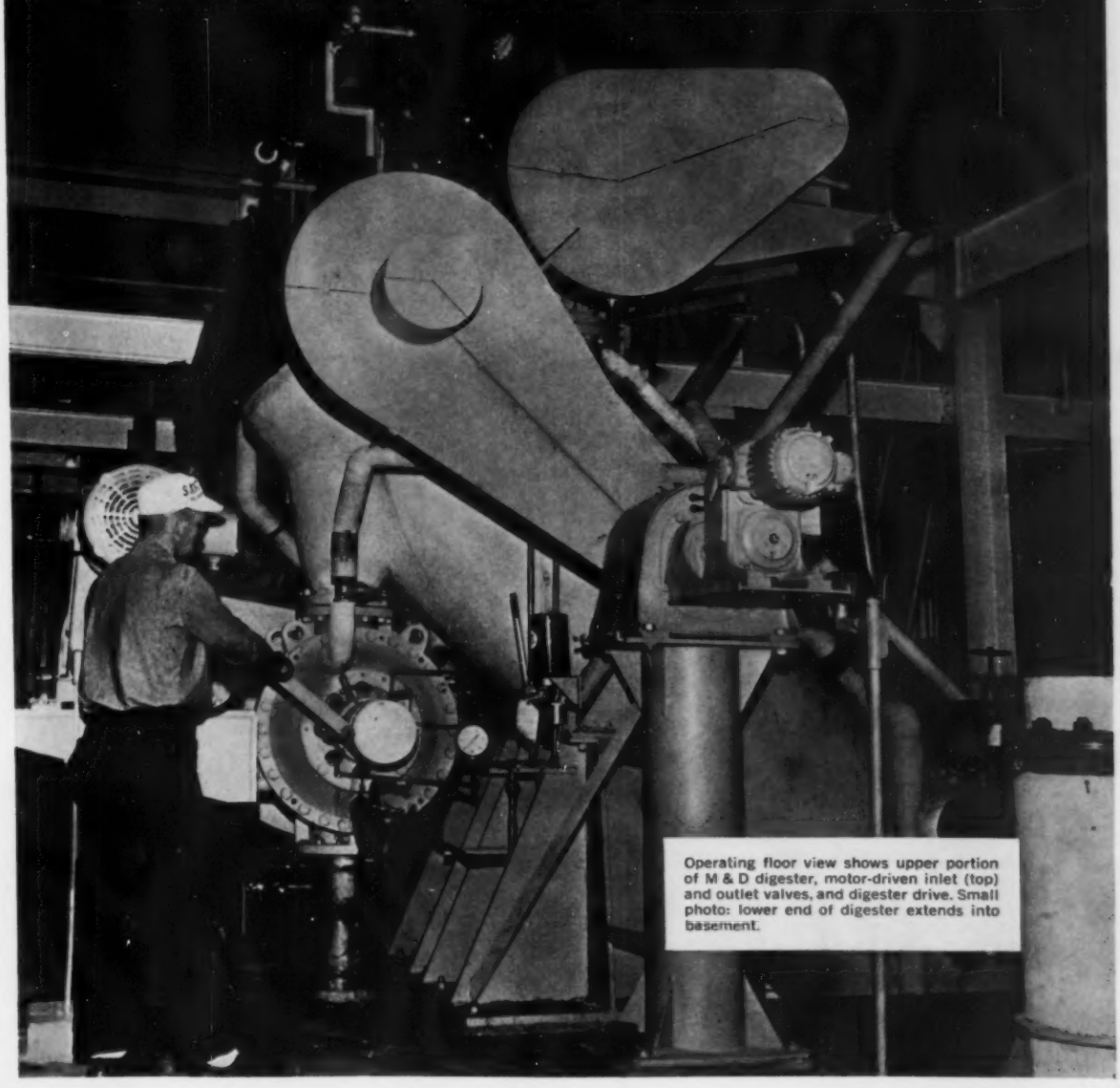
Bauer pulping and refining equipment in Blandin chemi-mechanical pulp mill

Bauer equipment plays an important role in the 4-million dollar quality improvement program at Blandin Paper Co., in Grand Rapids, Minn.

In the company's new chemi-mechanical pulp mill, chips are cooked automatically and under pressure in a Bauer M & D Continuous Digester. This inclined, space saving unit provides uniform cooking on a continuous basis and facilitates maximum efficiency of subsequent operations. These include moisture removal and preliminary fiberizing in a Bauer Pressafiner, then refining in Bauer double revolving disc refiners, final stock preparation in a Bauer Pump-Through refiner, and cleaning in Bauer Centri-Cleaners. Bauer equipment can help improve quality and production in your mill, too. Ask for details.



THE BAUER BROS. CO., Springfield, Ohio



Operating floor view shows upper portion of M & D digester, motor-driven inlet (top) and outlet valves, and digester drive. Small photo: lower end of digester extends into basement.

Why have so many installations of chemical recovery units (in the past five years) been equipped with Bailey instruments and controls?

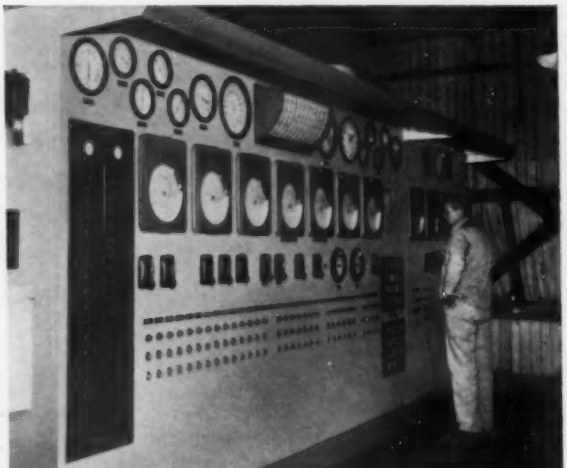
Bailey assures reliable and continuous operation with a control system engineered specifically for the chemical recovery process.

Every Bailey installation gives top performance. It's the reason for Bailey's long and prominent association with chemical recovery . . . and it's why you'll find Bailey instruments controlling virtually every process within many pulp and paper mills.

Bailey starts with sound engineering and economic evaluation of your needs . . . an evaluation based on more than 40 years' experience, kept fresh by a national network of engineers in constant contact with your industry.

Then the selection of the *right* system . . . selection made simple by a complete line of equipment . . . from conventional instruments through sophisticated data processing systems.

That's the Bailey way. Put this logic, capability and performance to work on any process control problem you have. Call on the Bailey District Office or your nearby Resident Engineer. Or, write direct.



In Oregon—maximum economy, minimum maintenance since 1958; Bailey control center for chemical recovery unit at Georgia-Pacific Paper Co., Toledo, Oregon. Evaporator system (right) is also operated from this Bailey center.

P152-1

PULP AND PAPER DIVISION

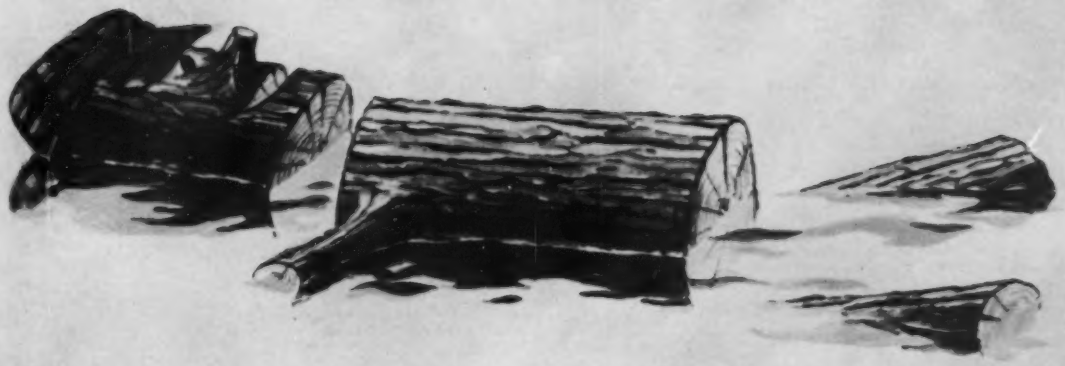
BAILEY METER COMPANY

1056 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

. . . PENNSALT CAUSTIC PAYS OFF IN PULPING



Supplying the pulp and paper industry with quality caustic soda has been a Pennsalt specialty for over half a century. Our customers like the personalized service they get . . . the dependable delivery they can count on, by barge, rail or truck, from modern Pennsalt plants and shipping centers. Our Technical Service Department is always ready with experienced aid on handling, storing and using your caustic. Call our nearest sales office. Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, Three Penn Center, Philadelphia 2, Pa.

See our complete listing in Chemical Materials Catalog

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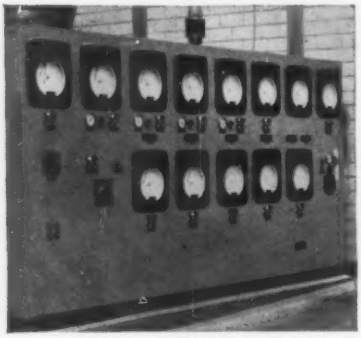
Pennsalt Chemicals
ESTABLISHED 1850

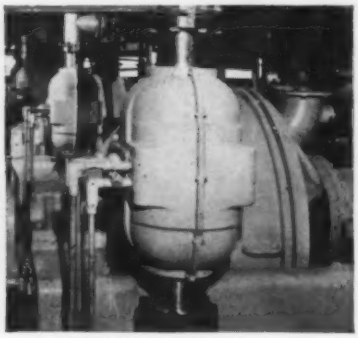
PENNSALT CAUSTIC SODA is made at Calvert City, Ky., Portland, Ore., Tacoma, Wash., Wyandotte, Mich., and Mexico City

Pulp stocks, chemicals, no liquid is too tough for the

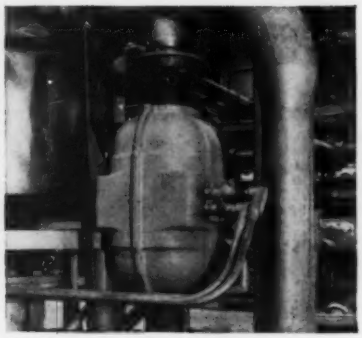
Crown Zellerbach Antioch, Calif. uses Foxboro Magnetic Meters for blending fir and hemlock stocks. Rugged meters are installed outdoors — need no protective housing.



Foxboro Dynalog recorders give operators continuous chart records of the Magnetic Meters linear output. Like the flow meter, Dynalog recorders seldom require maintenance.



St. Regis Paper Company, Jacksonville, Florida. St. Regis uses 5 Foxboro Magnetic Flow Meters in its stock refining system. Meters are 6" in diameter. System was installed in 1956.



Riegel Paper Corporation, Acme, North Carolina. Riegel has several Magnetic Meters in its mill. The 8" meter shown above measures broke flow in their pulp stock blending control system.

additives, dyes...
Foxboro Magnetic Flow Meter

hundreds of successful installations reported by America's leading mills

Introduced six years ago, the Foxboro Magnetic Flow Meter has proved its superiority for measuring the toughest pulp and paper mill liquids. Pulp stocks, mud slurries, starch, liquors all flow right through the meter without plugging up.

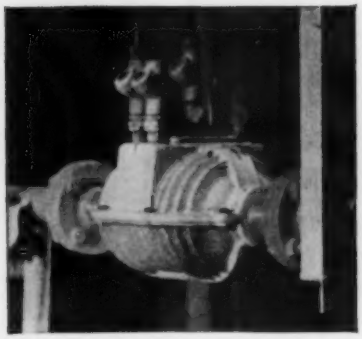
That's because the Magnetic Meter has no flow restrictions of any type. No taps to get plugged or frozen, no seals or purges, no moving parts of any kind. Measurement is made by electrodes flush-mounted in corrosion-proof meter wall — then transmitted by electric cable to a Foxboro Dynalog* electronic recorder. System accuracy is ±1%.

Foxboro Magnetic Flow Meters have solved some of the paper industry's toughest measurement problems. Ask your Foxboro field engineer to show how it can help with yours. Or write for Bulletin 20-14. The Foxboro Company, 239 Norfolk St., Foxboro, Mass.

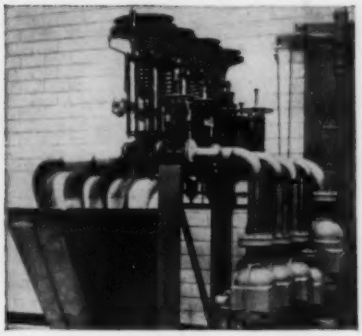
Reg. U.S. Pat. Off.

FOXBORO

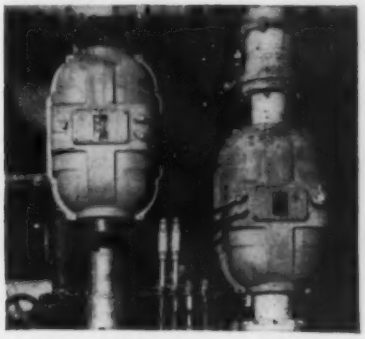
REG. U. S. PAT. OFF.



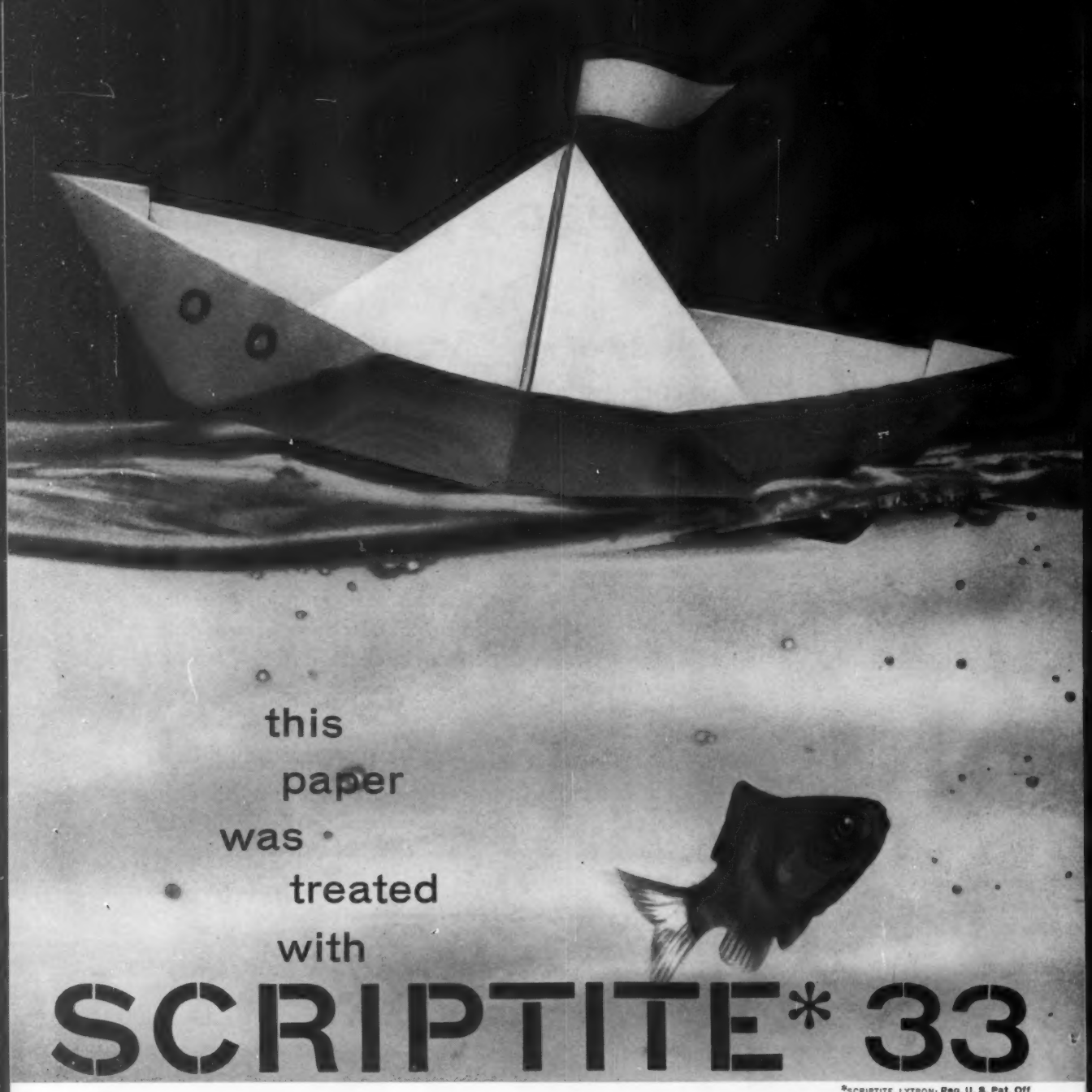
Gulf States Paper Corporation, Demopolis, Ala. Gulf States uses this 2" Magnetic Meter to measure chlorine dioxide flow. This highly corrosive chemical has no effect whatever on the Magnetic Meter.



International Paper Company, Corinth, New York. At International Paper, Foxboro Magnetic Meters allow one operator at a central panel to blend 5 pulp stocks — as well as additives and dyes — accurately and continuously.



Scott Paper Company, Chester, Pa. Scott has a total of 9 Foxboro Magnetic Flow Meters. The first installed on a bleach line over 6 years ago, has required maintenance only once — a new vacuum tube for its Dynalog recorder.



*SCRIPTITE, LYTRON: Reg. U. S. Pat. Off

Monsanto Scriptite 33—a melamine resin supplied as a dry fine powder—imparts high wet strength to many paper products. It increases wet bursting strength, dry tensile strength, wet rub resistance . . . improves dry stiffness, dry mullen, folding endurance, wax pick, dimensional stability. Monsanto offers a wide range of Scriptite resins for increasing the wet strength and water resistance of paper and board. Also available are Monsanto Lytron resins, water dispersal resin polymers, for efficient paper and board coating. For complete information of Scriptite 33 and other Monsanto paper resins, write Monsanto Chemical Company, Plastics Division, Room 748, Springfield 2, Mass.

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MONSANTO DEVELOPER IN **PLASTICS**

The Monsanto line of paper resins also includes: **SCRIPTITE 40** *urea type wet-strength resin.* **SCRIPTITE 54** *water-insoluble adhesive for paper and liner board.* **SCRIPTITE 55** *low viscosity resin for improved water resistance, wet and dry rub resistance with easy handling.* **SCRIPTITE 52** *in combination with formaldehyde, gives water resistance to folding boxboard and jute liner.* **SCRIPTITE 50** *unsurpassed printability, improved surface characteristics on boxboard.* **SCRIPTITE 45** *new thermosetting resin for stabilization of paper.* **LYTRON*** *water dispersal resin polymers for coatings.*

ClO_2

GASPESIA NOW HAS CHLORINE DIOXIDE PULP!

Now known as **WONDERWHITE**

Don't commit yourself on future orders for sulphite pulp until you've tried the *new* Gaspesia Chlorine Dioxide pulp.

This high-quality new ClO_2 pulp is now being produced in a bleach plant only six years in operation. Space was left for this Chlorine Dioxide operation in the original plant plans. Now, Gaspesia is the only North American sulphite pulp made from northeastern woods bleached in a completely modern bleach plant, utilizing chlorine dioxide.

Gaspesia pulps have long been known for their excellent cleanliness, strength and good forming qualities. Now chlorine dioxide makes possible a brightness of 91 G.E.

Orders for trial cars are now being accepted. We suggest you order your initial shipment today to assure a steady supply in the years ahead.

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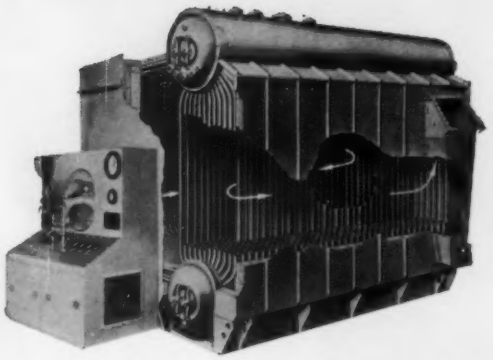
C-E Power Boilers for the Pulp and Paper Industry



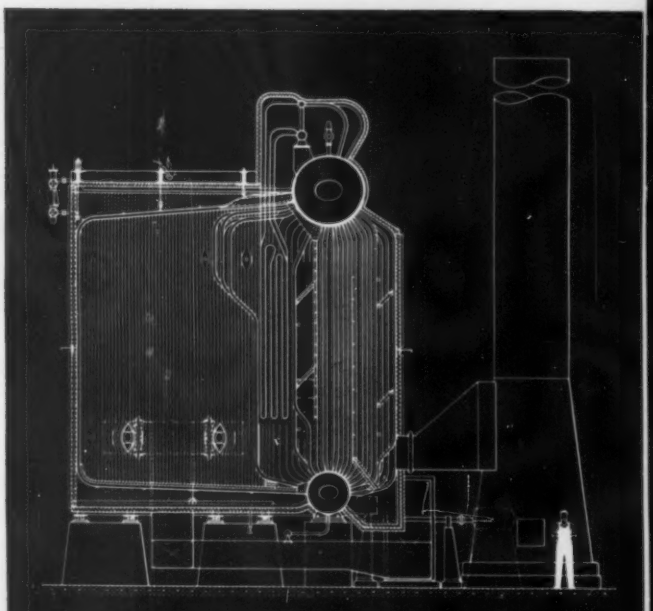
C-E Package Boiler, Type VP—Completely shop-assembled . . . available in 23 sizes from 4,000 to 90,000 lb of steam per hr capacity . . . pressures to 700 psi . . . temperatures to 750F in certain sizes . . . available with integral console control panel. This unit contains more water-cooled area per cubic foot of furnace volume than any other boiler of its size and type. For oil or gas firing.

C-E offers boiler designs for any pressure, temperature and capacity . . . for any fuel or combination of fuels. The units illustrated here include both standard and custom designs with capacities from 4,000 to 750,000 lb of steam per hr, with pressures to 1350 psi and steam temperatures to 950F. Two units are for oil or gas firing. The other four are available for coal, oil, gas or bark firing—either singly or in any desired combination. In addition to those illustrated, there are other designs available for more specialized applications.

Whether you wish to add steam capacity to your present power plant — or build a single large boiler to meet all your steam needs — these units allow you a freedom of choice never before available. In addition to making full utilization of your bark supply, you can choose a supplemental purchased fuel best suited to the economics of your area for use when your bark supply is inadequate or your steam needs exceptional.

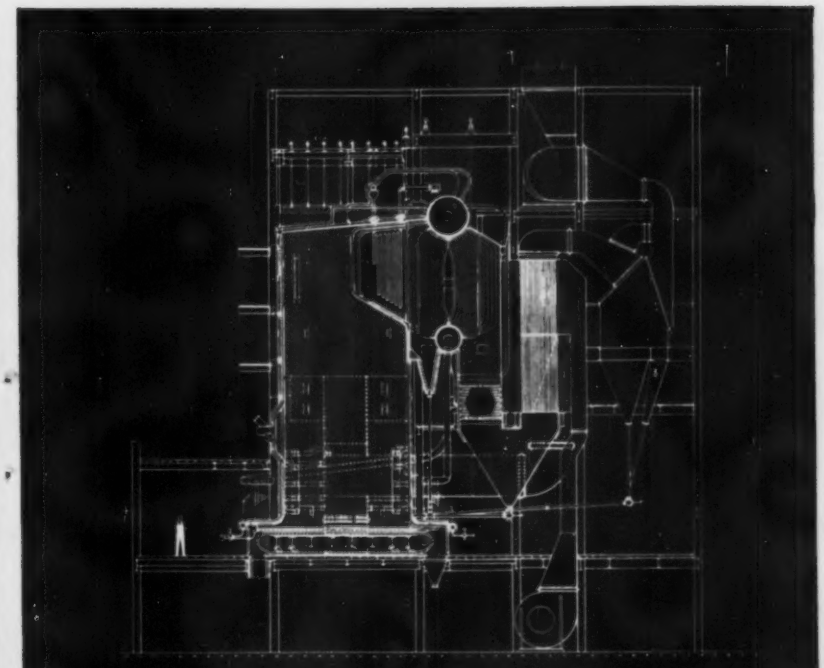
All these boilers have been proved in operation. They perform reliably and economically and — no matter what your combination of fuels or steam conditions — are designed to meet your needs exactly.

For further information, contact the C-E office nearest you. Or, if you prefer, write or phone the C-E Paper Mill Division in New York. C-19BA

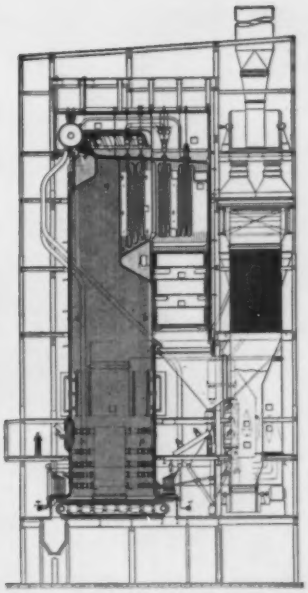


C-E Vertical-Unit Boiler, Type VU-55 — Available in five sizes . . . capacities from 50,000 to 120,000 lb of steam per hr . . . designed for three pressure ranges: 250, 500 and 700 psi, and total steam temperatures up to 750F. Equipped with tangential burners, 60-inch steam drum assures generous water capacity and steam reservoir space. Tangent tube waterwalls offer complete furnace protection, minimizing maintenance. For oil or gas firing. Available with heat recovery equipment, if desired.

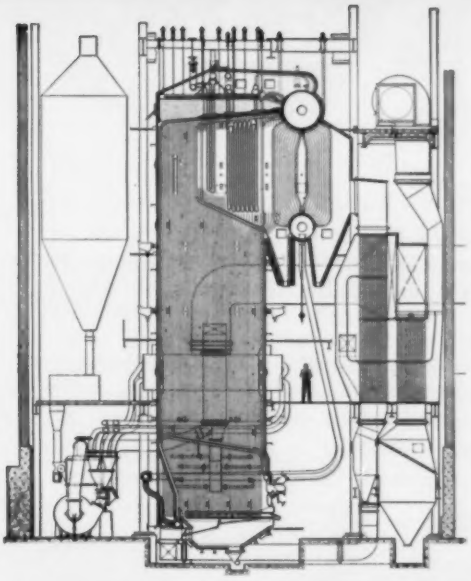
These drawings show but a few of the many types of C-E boilers available for pulp and paper mill use which burn two or more fuels. Not illustrated here is the C-E Chemical Recovery Unit.



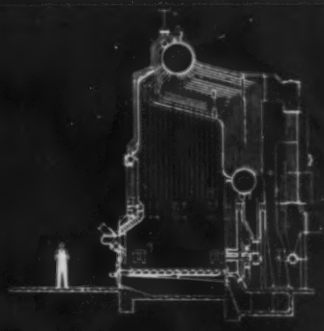
C-E Vertical-Unit Boiler, Type VU-40 — fired by C-E Tilting Tangential Burners and a C-E Continuous Discharge High Set Spreader Stoker. This unit is designed to burn natural gas, oil, coal and bark . . . a baffleless boiler with capacities ranging to about 300,000 lb of steam per hr with pressures to 1350 psi; temperatures to 950F.



C-E Radiant Type Boiler — Type RX — for bark, oil, natural gas, stoker or pulverized coal firing in any combination. Available in capacities to 750,000 lb of steam per hr, with pressures to 1350 psi and temperatures to 950F. The unit pictured is fired with a C-E Continuous Discharge High Set Spreader Stoker and C-E Tilting Tangential Burners.



C-E Vertical-Unit Boiler, Type VU-40 — for capacities to about 300,000 lb of steam per hr, pressures to 1350 psi and temperatures to 950F. For pulverized coal and bark firing, singly or in any combination. The unit illustrated is equipped with C-E Bowl Mills, C-E Tilting Tangential Burners and a C-E Dump Grate Spreader Stoker.



C-E Vertical-Unit Boiler, Type VU-10—fired by a bark and coal burning C-E Spreader Stoker. VU-10 Boilers are available for capacities to 50,000 lb of steam an hr, with pressures to 500 psi and temperatures to 650F. This unit type is available for coal, oil, gas or bark firing — singly or in combination.

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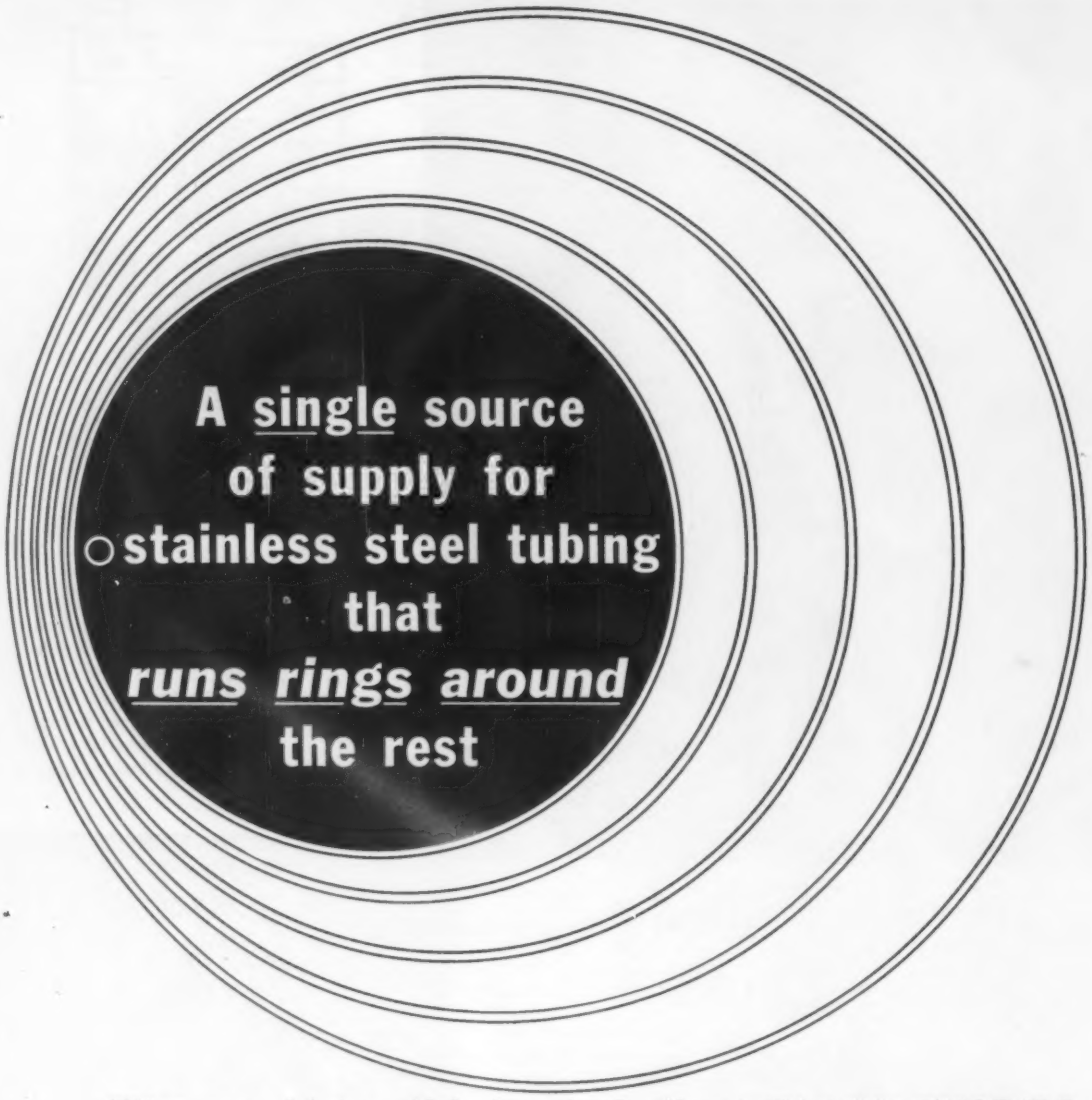
ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE



Widest range of fusion welded pipe and tubing available—bright annealed or pickled finishes.

Lengths up to 60 feet. ⅛" to 6⅝" O.D. Wall thickness from .008" to .154" depending upon O.D. and application.

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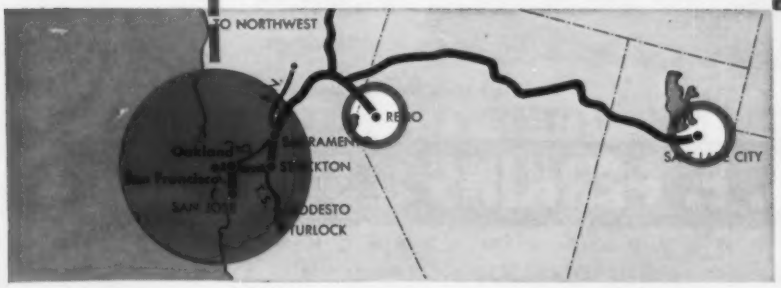
3481 acres of industrial property within 93 miles of the Golden Gate!

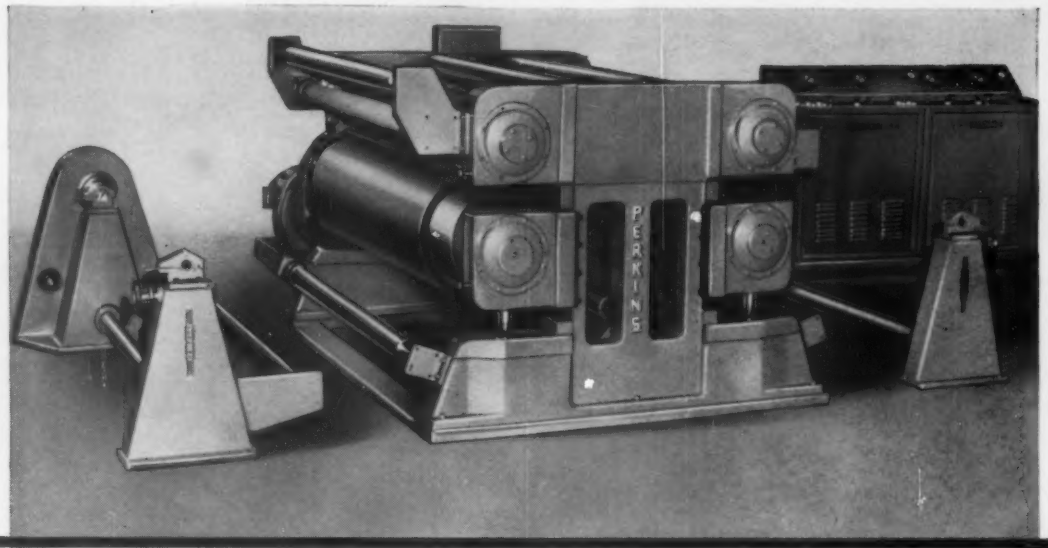
Booming Northern California's huge reserves of fibre and abundant sources of water are close to two of the nation's fastest-growing population centers... the San Francisco Bay Area and the upper Central Valley. Nearly 6,000,000 people live in Northern California. Mills and converting plants in this strategic area therefore have a vital competitive advantage in the Western paper and board market.

Western Pacific has many choice plant sites ideally suited for the paper and pulp industry. For complete, *confidential*, information write F. B. Stratton, Director, Industrial Development and Real Estate, 526 Mission St., San Francisco 5, Calif.



WESTERN PACIFIC

Route of Fast Freights and the Vista-Dome California Zephyr



PERKINS announces a versatile new DOUBLE EMBOSSER with these advanced features . . .

- ★ Embosses both sides in one pass.
- ★ High speed production.
- ★ Accurate pressure control independent for each set of rolls and each side of the calender.
- ★ Can be used as a Single Embosser or Double Embosser.
- ★ Patterns can be changed without holding up production.
- ★ Quick and easy roll changes.
- ★ All welded steel construction.
- ★ Self-aligning roller bearings.
- ★ Large rolls for minimum distortion.

THE WORLD'S LARGEST MANUFACTURERS OF CALENDER ROLLS

B. F. PERKINS & SON, INC.

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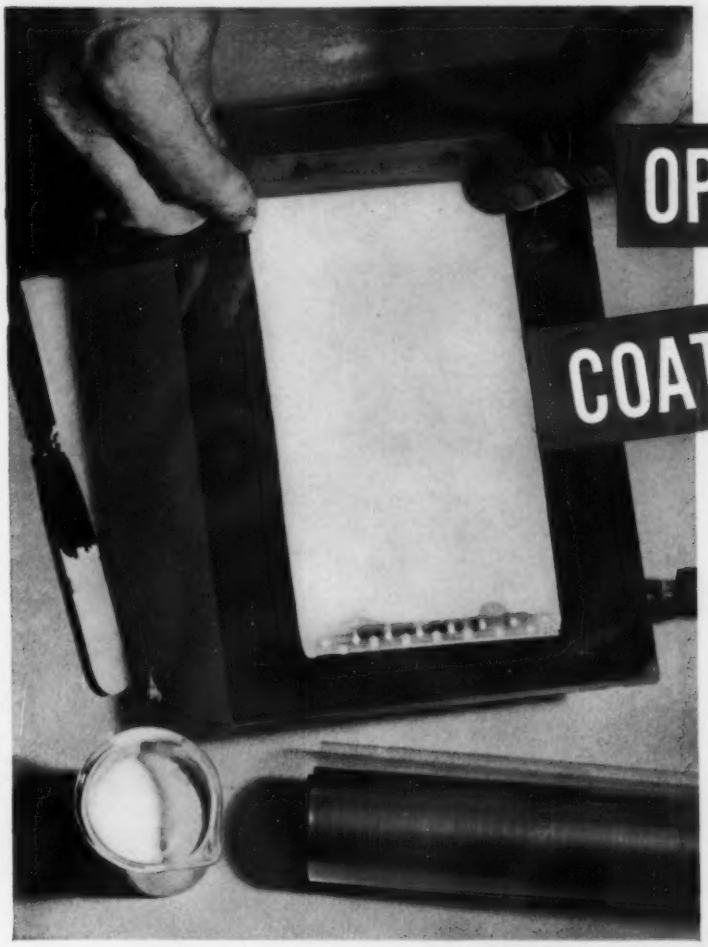
From the Paper Research Laboratory of The New Jersey Zinc Company
ONE *of a Series of Test Procedures on Horse Head Titanium Dioxide*



OPACITY OF COATING COLORS

New Jersey Zinc paper technicians have developed this simple, quick and accurate test method for measuring the opacity of coating colors. This eliminates the influence of the substrate and permits highly accurate study of the factors responsible for opacity in coating colors.

Such test procedures and the results obtained through their application play an important role in the development of new knowledge on the function of titanium dioxides in paper products. They serve, too, in maintaining the high quality and uniformity standards of HORSE HEAD titanium dioxides.

Employing a specially designed stainless steel suction box and a Bird applicator, technicians prepare uniform films of coatings on cellophane sheets to be tested for opacity on a spherical reflectometer.

HORSE HEAD® TITANIUM DIOXIDE

THE NEW JERSEY ZINC COMPANY, 160 Front St., New York 38, N. Y.
Founded 1848

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One in a series of interviews with the men who are "Virginia"

"If you want your pulp to hold those extra brightness points, neutralizing with SO_2 will prevent any reversion—may even add a point or two."

James G. Todd, a technical representative for Virginia Smelting Company, answers questions on the service SO_2 offers in obtaining and holding maximum brightness of bleached chemical and semi-chemical pulps.

James G. Todd, a "Virginia" technical representative

Q Are extra brightness points important to pulp makers?

A Yes, the tendency seems to be in that direction. Paper pulp mills that were satisfied with 75 to 80 GE brightness points a few years ago are today trying hard to maintain an 85 plus brightness.

Q Can neutralizing with SO_2 help accomplish this?

A Yes. The fact that SO_2 is so easy to use and control makes it possible to adjust the *p*H to the desired level. The SO_2 converts the residual chlorine to chloride ions and at the same time neutralizes the caustic or alkaline buffers present. Free chlorine exhausted either by heat on a pulp dryer or in storage can cause reversion of the bleach. Neutralization of the alkali present allows more effective removal of cations during washing and gives a high purity pulp of low ash content.

Q But does it actually improve brightness? If so, how?

A Yes, you can actually pick up a point or so by using SO_2. The pulp usually has impurities of various kinds, such as ferric iron. Ferric iron will stain the fiber brown and is difficult to remove. SO_2 reduces the iron to the soluble ferrous state, in which it can readily be separated from the pulp by washing. In some cases lowering the iron content of the pulp raises the brightness by two points.

Q How can "Virginia" help pulp manufacturers with brightness problems?

A As you know, "Virginia" specializes in technical service. While we don't suggest we are experts in pulp making, we do have broad experience in the application of the chemicals used in pulp bleaching, especially the chemicals we supply —liquid sulfur dioxide, zinc and sodium hydrosulfite. Any pulp maker who is having difficulty in maintaining brightness can contact us and one of our technical representatives will go into his plant and give what assistance he can.

Q What specific help do you give?

A Well, we may recommend a change in the engineering of the installation if it is indicated—or a change in the way the SO_2 is used. Each plant usually has a problem that only on-the-spot analysis can lick. Sometimes the operation is satisfactory, and the problem is one of economy merely, that is, chemicals are being used excessively. A careful study may result in significant savings by cutting down on the amount. When the mill is large and the operation extensive, the savings can be very substantial.

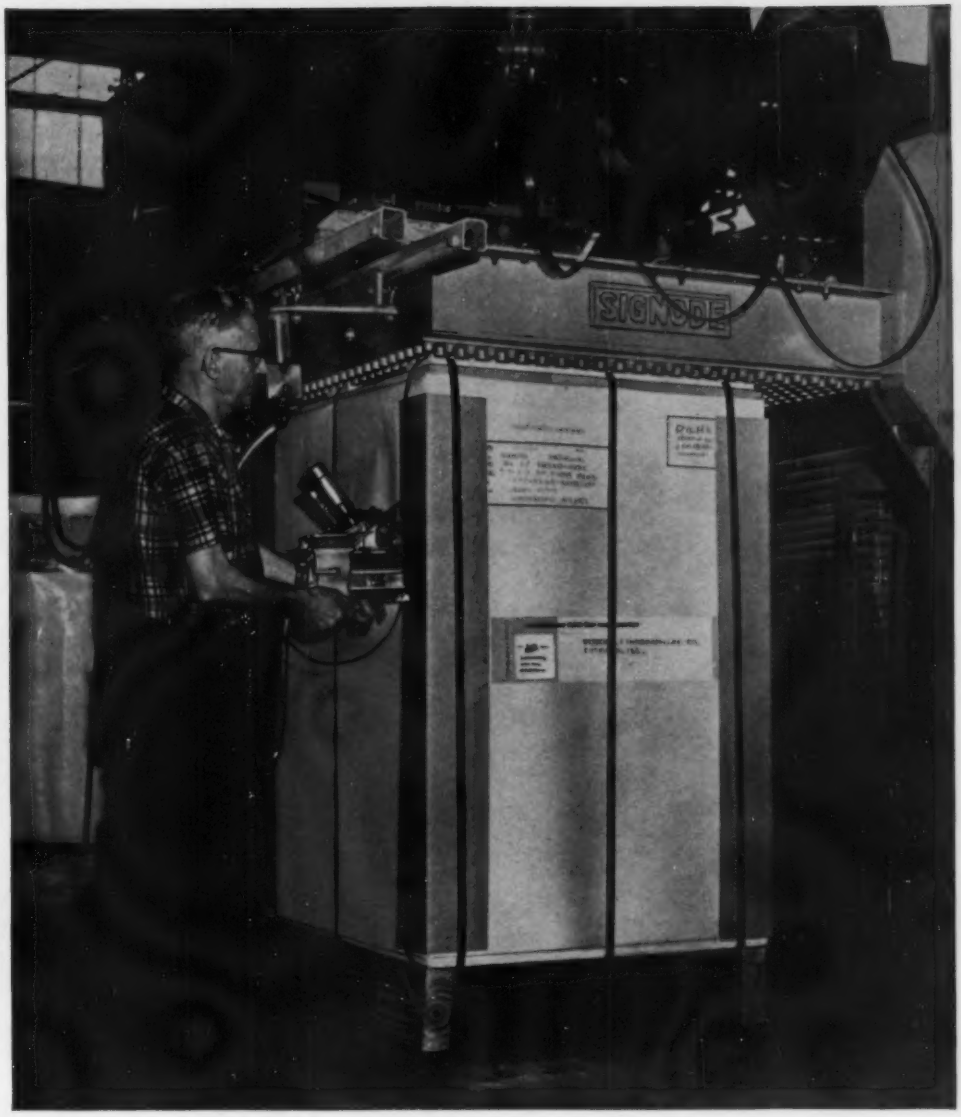
Q Is "Virginia" technical service used frequently by the industry?

A Yes, it is in steady demand. The name "Virginia" is a familiar one to most pulp makers. One of the reasons is that "Virginia" chemicals are so widely preferred. The big majority of pulp manufacturers are using "Virginia" SO_2 as an antichlor or as a neutralizing agent because they can rely on its purity—and because of dependable service. As for our technical representatives—like myself, they are almost constantly in the field, helping manufacturers with various problems. A letter, wire or phone call to the "Virginia" offices asking for help on a problem involving SO_2, sodium or zinc hydro will bring a "Virginia" technical representative on the double.

Industrial Division
VIRGINIA SMELTING COMPANY
Dept. 274, West Norfolk, Va.

VIRGINIA® Chemicals

Field Offices: New York • Boston • Chicago • Atlanta
Asheville • Philadelphia • Akron • Seattle • Memphis
Available in Canada and many other countries



New Signode Compression Strapping Station

This skid of paper is being strapped on a Signode CS20-1 press, using the latest Signode methods. It will arrive at destination in top condition. Paper slippage in transit will be at an absolute minimum—85% less on the average than with other methods. The receiver will get more usable sheets of paper in every skid. He can use the paper directly from the skid without restacking. This mill has improved its product—yet reduced its costs per skid for time and materials.

Write today for all the facts about Signode strapping presses and tools for the paper industry... and for the facts about the money-saving advantages of strapping the Signode way.

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First in steel strapping

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M. A. Thompson (*left*), Wyandotte Eastern District Manager, and Purchasing Agent W. F. Merrilees, of West Virginia Pulp and Paper Company, discuss the firm's fast-growing chemical requirements. Periodic review like this is one reason Mr. Merrilees says:

"It's a pleasure to work with Wyandotte"

"From our dealings covering a long period of years, we would appraise Wyandotte as a very dependable source for chemical raw materials," states W. F. Merrilees, Purchasing Agent, West Virginia Pulp and Paper Company, New York, N.Y.

"Wyandotte puts the customer's requirements first . . . is always on the job when we need them with helpful technical service. Wyandotte is research-minded, too . . . their products are uniform and of high quality. Over the years, they have demonstrated that they can grow with our needs. It's a pleasure to work with them."

Have you discussed your requirements for chemical raw materials with a Wyandotte representative lately? If not, next time he calls, give him the opportunity to show you how Wyandotte's expanded facilities and multi-plant operations may be of greater service to you. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

Wyandotte
CHEMICALS
MICHIGAN ALKALI DIVISION

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SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA
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DICHLORODIMETHYLHYDANTOIN • OTHER ORGANIC
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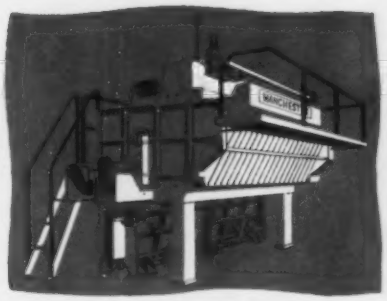
for complete machine room responsibility

Manchester

from headbox



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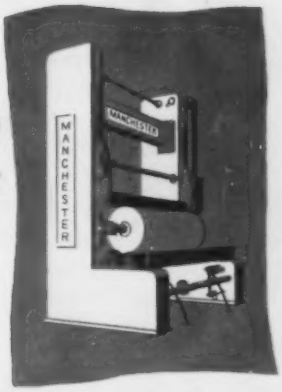
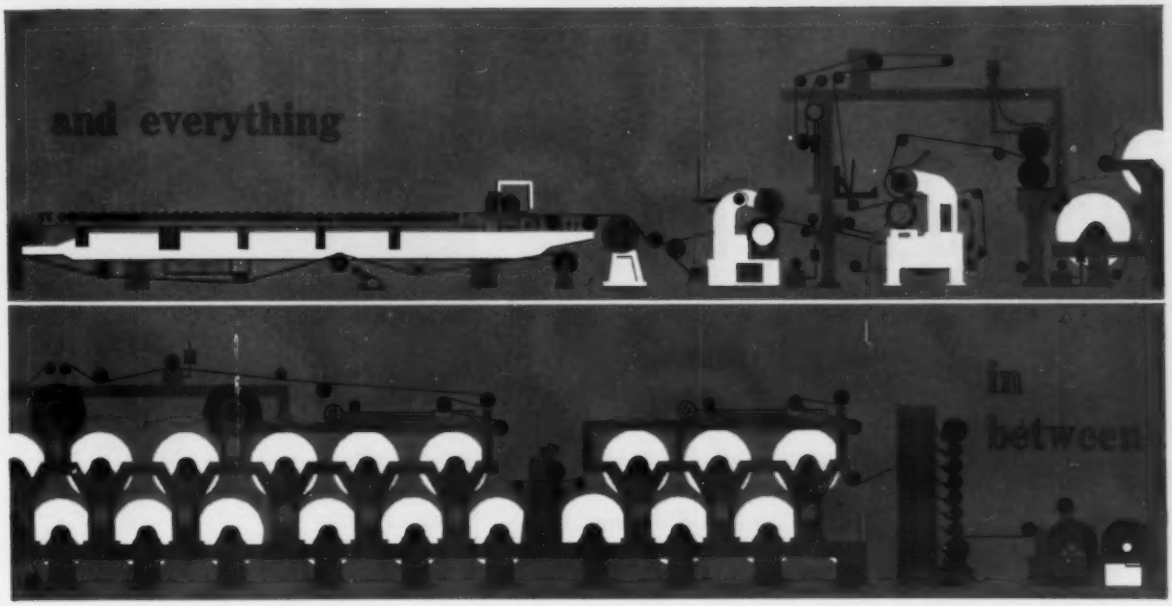




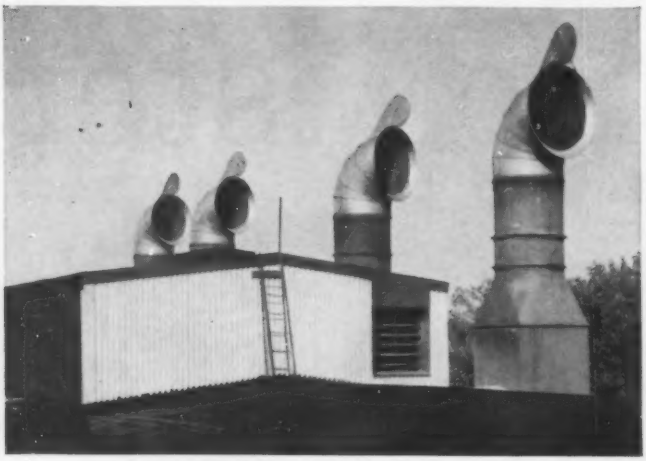
You can depend on Manchester for the kind of creative design that pays off in more efficient, more productive paper-making machines. With a skilled, experienced engineering staff . . . with modern manufacturing facilities, including a new 100,000 sq. ft. plant . . . Manchester builds advanced paper machines today that will compete profitably with tomorrow's machines—help keep you out front in the highly competitive years ahead.

Considering expanding or modernizing your production facilities? Call in the Man from Manchester. He'll show you how Manchester has put practical ingenuity to work—improving quality, boosting production, cutting costs—for other papermakers. These same benefits are yours when you give Manchester complete machine room responsibility. Write: **THE MANCHESTER MACHINE COMPANY, Middletown, Ohio.**

Manchester . . . profit builders for papermakers

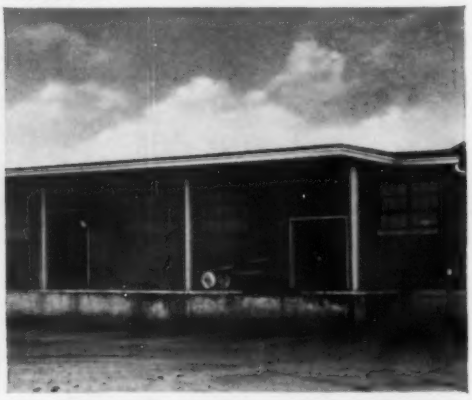
MMC

THE MANCHESTER MACHINE COMPANY



A sulphate mill shop superintendent says these ventilators of 14 gage, Type 304 Stainless are better **and last longer**, in green liquor fumes than previously used carbon steel units. Here stainless costs less, too.

Galvanized steel gutters on this paper mill warehouse were destroyed by corrosion in 15 months. Present gutters of Armco 18-8 Stainless are in excellent condition after more than 10 years.



Armco Stainless Pays Its Way All Through The Mill

Strong, corrosion-resisting Type 316 Stainless bolts have served for 8 years as fastenings on the spent liquor storage tank at a sulphite mill. They're good for many more years.

Save by specifying Armco Stainless Steels for processing equipment. But it doesn't pay to stop there.

There are other ways, too, that stainless cuts costs of upkeep, replacement and inspection. You can free repair crews for essential jobs by using these low maintenance metals for structural covers, gratings, ladders, stairways, special fasteners, ventilators, roof drainage systems, laboratory equipment and many other items exposed to moisture and chemical attack.

For details about the many ways that Armco Stainless Steels protect pulp and paper mill profits, fill in and mail the coupon. Full price and delivery information is quickly available from your nearby distributor of Armco Stainless Steels.

New steels are born at Armco

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RESYN® 3600

POLYVINYLIDENE CHLORIDE

RESYN 3600 is a water dispersed polyvinylidene chloride that promises a revolution in protective coatings. For the first time, it combines exceptional barrier properties with simple low cost application by high speed coating machines or spraying. It offers important new advantages:

MOISTURE—Moisture vapor transmission is 2½ to 5 times lower than that of polyethylene. **ODORS**—Resistance to transmission of common gases 1000-2000 times greater than polyethylene. **CHEMICALS**—Almost complete non-reactivity to concentrated acids, solvents, alkalies and other corrosive materials. Grease and oil penetration is nil. Fire retardancy is excellent.

RESYN 3600 can be coated on paper, paperboard, plastic and other substrates. It also may be applied to fibers. It is of interest to a broad range of industries, including food and other types of packaging, converting, chemical, and textile.

Experimental lots of RESYN 3600 are now available. A 14 million lb. plant will be on stream this fall. Write for information.

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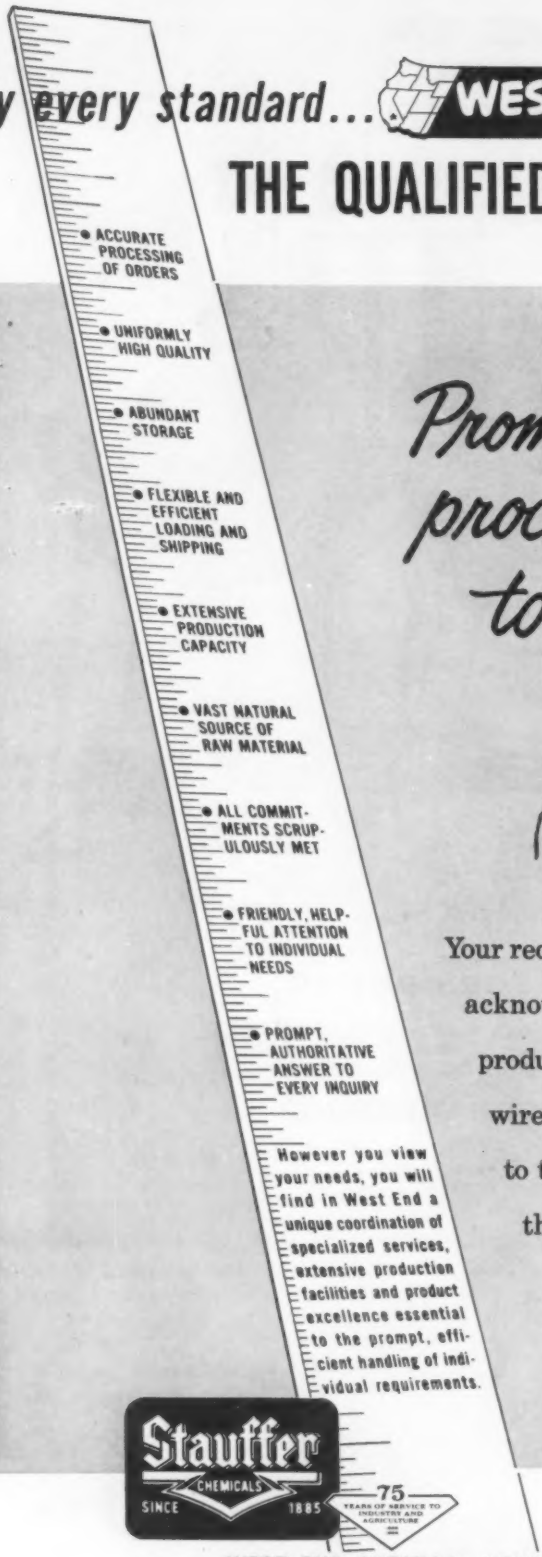
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TEST SHEET

TEAR OFF THIS SHEET AND TEST IT FOR WET STRENGTH

SOAK IT!

THEN PUT IT THROUGH THE WET TENSILE TEST — NOTE HOW IT MAINTAINS A HIGH PERCENTAGE OF WET STRENGTH! TURN OVER TO LEARN HOW THIS SHEET GOT ITS WET STRENGTH.

CYANAMID

TEST SHEET

THIS SHEET PRODUCED BY **CYANAMID'S HE* PROCESS** IN CONJUNCTION WITH

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Cyanamid's exclusive **HE** process, using **MELOSTRENGTH** Wet-Strength Resin, provides remarkable wet-strength results. If you're **economy** minded, you would appreciate using 30% to 50% less wet-strength resin while still maintaining specifications. If you're after **greater strength,** you can achieve papers with wet-strength never before attainable, using the same amount of resin required for ordinary strength.

MELOSTRENGTH gives you: 1. **Strong paper** even when soaked. 2. **Permanence of strength** even under storage conditions of high humidity. 3. **Good resistance** to most chemicals and acids. 4. **It is non-linting**—wipes clean without shedding.

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Newport News manufactures Yankee Dryer Rolls to meet every requirement of high speed papermaking production.

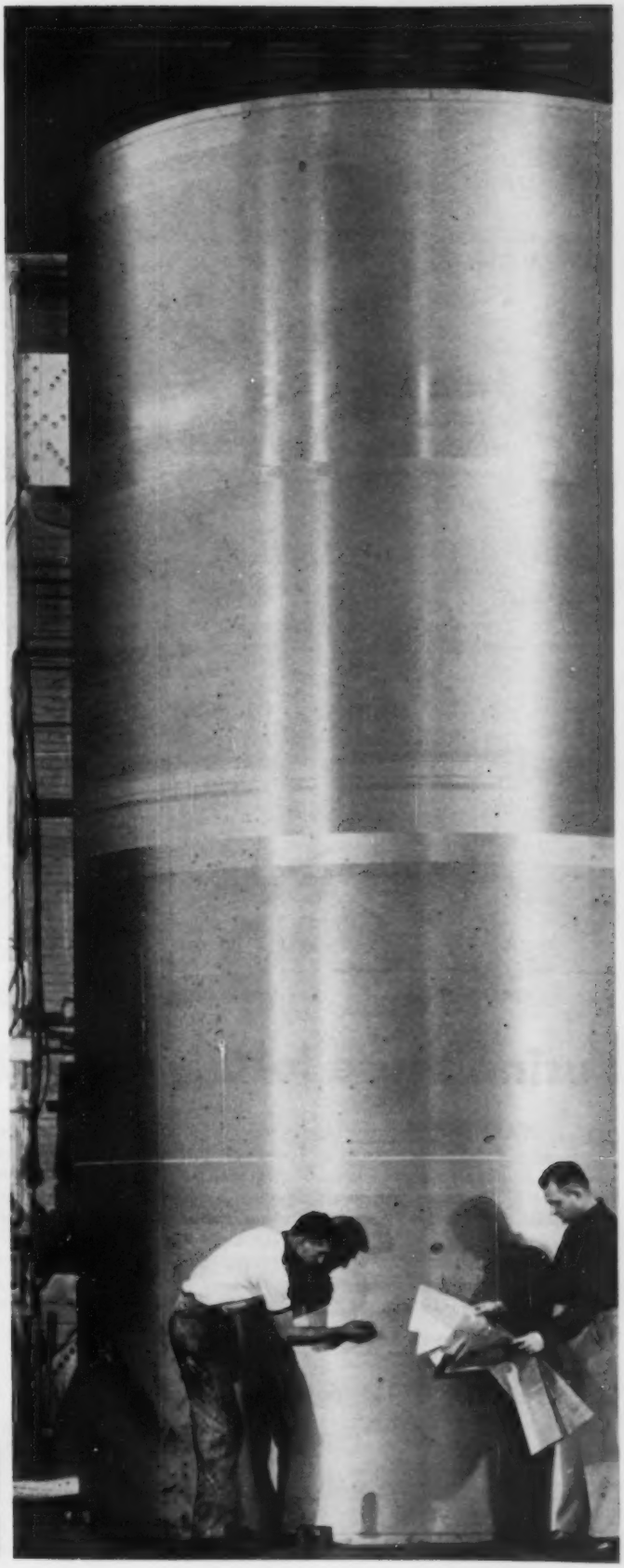
Every step in the manufacturing process undergoes the most painstaking quality control to assure delivery of steam-tight dryer rolls. Newport News can produce rolls up to 16 feet in diameter, up to 320" in length. Castings weighing up to 100,000 lbs. are machined to close tolerances and polished to any specified finish.

Capitalize on Newport News' tremendous productive capacity. In foundries, forge shops, machine shops and other facilities covering 225 acres, hundreds of skilled craftsmen complete orders with specialized techniques backed by 75 years of metal fabricating experience.

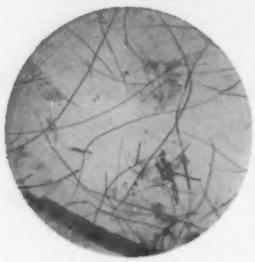
If you are considering new papermaking equipment, we welcome your inquiry.

REFLECTION OF QUALITY—The reflected image of the operator indicates the mirror-like finish of this 16-foot diameter drying roll.

Newport News
SHIPBUILDING AND DRY DOCK CO.
NEWPORT NEWS, VIRGINIA



WHEAT STRAW

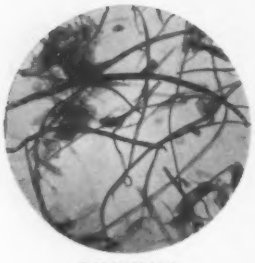


RICE STRAW

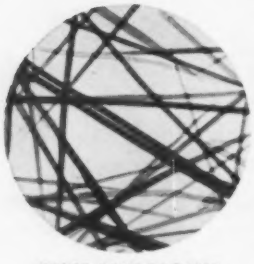
REEDS
(phragmites communis)

ELEPHANT GRASS
(before cleaning)

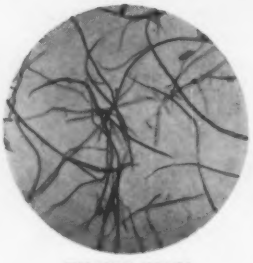
We build pulp and paper mills



CORN STALK
(before depithing)



SUGAR CANE BAGASSE
(completely depithed)

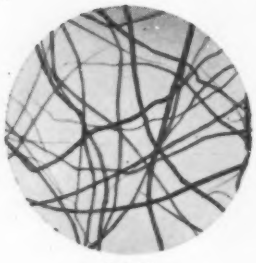


ESPARTO GRASS

BAMBOO

around the world

magnification:
approx. 35x



KENAF

MANILA HEMP

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MONTEREY PINE

using these locally-abundant raw materials

Many countries have improved their economic position by making pulp and paper from locally-abundant grasses, woods and agricultural fibers. They began by having Parsons & Whittemore conduct a thorough technical and economic field survey. The selection of the proper process and equipment for use of such fibers is dependent upon many factors that can only be properly evaluated by highly-experienced personnel.

Field research is only one of Parsons & Whittemore's services. Our organization has world-wide technical, financial and machinery-manufacturing facilities that enable us to plan and supervise the designing, engineering, financing, construction and equipment of pulp and paper mills in any country having the required raw materials. We will even train local workers to operate the mill...and our branch offices will arrange for the sale of the plant's pulp and paper output on world markets. For information on any or all of these services, write to our nearest office.

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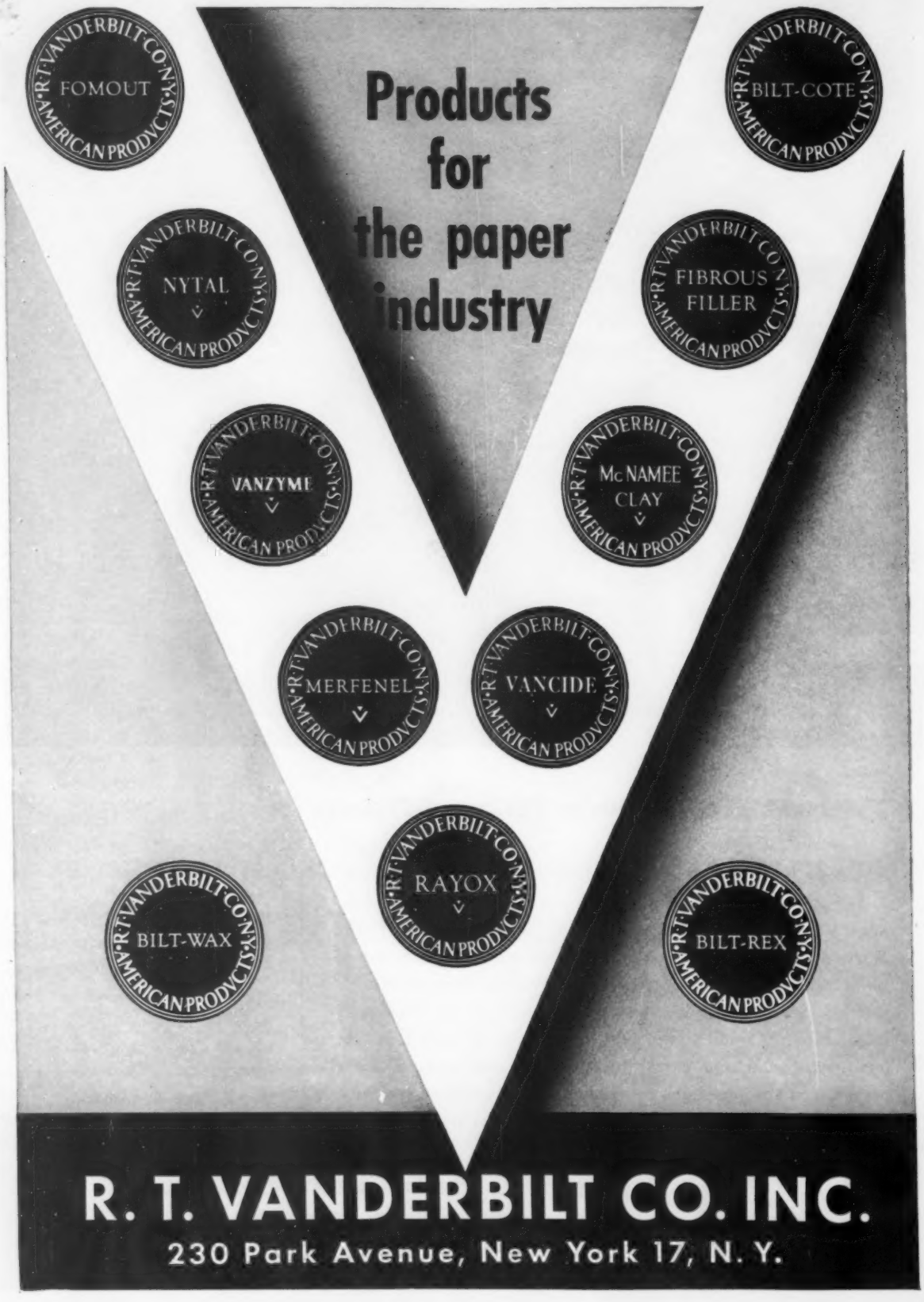
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PJT | PAPER TRADE JOURNAL

WEEK OF SEPTEMBER 12, 1960

Keyes Fibre to Build West Coast Plant

Keyes Fibre Co. of Waterville, Me., manufacturer of molded pulp products, has announced plans for a new manufacturing plant in Sacramento, Calif. Keyes has taken an option on a manufacturing site of approximately 30 acres in Sacramento and plans have been developed for a new pulp molding plant there. Anticipated cost of the new facility was not announced pending the completion of engineering and architectural plans and cost estimates.

The announcement was made at the company's headquarters in Waterville as president Ralph H. Cutting met with Sacramento officials and civic leaders in California. The new plant is not expected to have any extended effect on the volume of products made in the company's Waterville and Hammond, Ind. plants, officials revealed.

Construction of the proposed Sacremento plant will be started as soon as appropriate stockholder action is taken giving company officers authority to proceed. The plant will be of rectangular, partial two-story design, 600 by 250 feet, with 150,000 square feet of ground area offering 254,000 square feet or five million cubic feet of manufacturing, storage and office space.

It will employ approximately 200 people, including a local manager, key department heads and office staff, with an initial yearly payroll of nearly $1,000,000.

Mr. Cutting said the Sacramento area was chosen for its central location within the company's west coast market of all Keyes molded food trays, plates, cake circles, Chinet picnic plates, apple packs, and egg trays. The property adjoins the main line of the Southern Pacific Railroad and Mr. Cutting said ample rail and truck loading facilities will provide maximum speed in customer service.

C-Z Begins DMS Production at Bogalusa

Scheduled completion of Crown Zellerbach's new chemical plant in Bogalusa, La., early in September marked a significant step in the company's development as a chemical producer. The plant, which will manufacture dimethyl sulfide (DMS), dimethyl sulfoxide (DMSO) and methyl mercaptan (MM), was built at a cost of $1.8 million.

Operators began training last month in preparation for testing and startup of the complex plant—similar to a petroleum refinery in construction and operation. A. Haller, plant supervisor, is conducting the training program. In addition to the supervisor, seven men will be required for operation of the plant. Capacity will be five million pounds per year of DMSO, 10 million pounds of DMS and one million of MM.

The Bogalusa installation is said to be the largest production of pure organic chemicals derived from lignin.

DMSO is an industrial solvent which is finding a variety of uses in the manufacture of synthetic fibers, agricultural chemicals, insecticides, paint strippers, hydraulic fluids and in petroleum processes.

DMS, the basic material from which DMSO is made, also is used for natural gas odorants.

DMS and DMSO are colorless liquids sold in tank cars or drums, while MM is a gas and is packaged in pressure containers.

Dryden Paper Begins Tall Oil Production

Dryden Paper Co., Ltd., Dryden, Ont., marked its start of tall oil production when it recently shipped its first tank car of the crude oil to Hercules Powder Co.'s new refinery in Burlington, Ont.

At Burlington, a vacuum distillation process will break the crude oil down to yield mostly resin and fatty acids and to a lesser extent sterols and higher alcohols.

Soaps formed in the kraft process were formerly burned. Now these soaps are collected and acidulated with chlorine dioxide generator effluent to form tall oil. Generator effluent previously went to the sewer. Production of tall oil is another step forward in Dryden Paper's stream improvement program.

The installation was designed by the General Engineering Department of Anglo-Canadian Pulp and Paper Mills, Ltd., under the direction of R. J. Chambers, assistant chief engineer. Field supervision was provided by the Mill Engineering Department under A. Glen, chief engineer. At Dryden the production of tall oil is under the direction of W. E. Haviland, pulpmill superintendent, and Ivan Curry, pulpmill engineer.

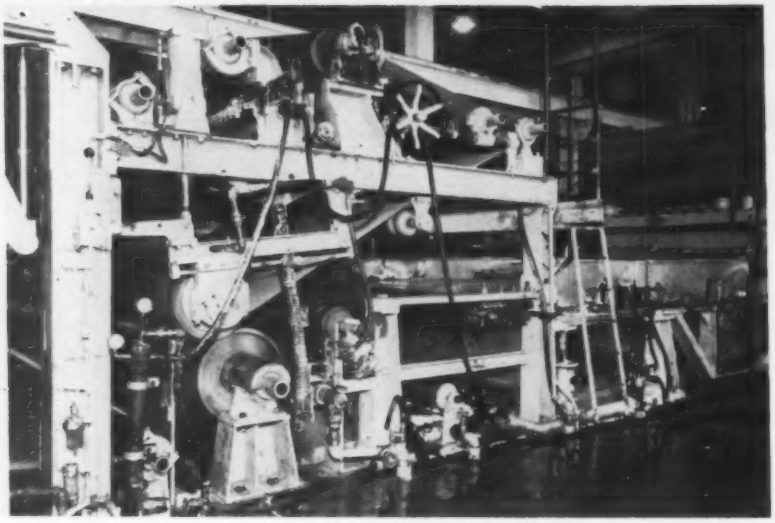
No. 1 Bicking Mill Sold To Brandywine Paper Corp.

The No. 1 Mill of Bicking Paper Mills in Downingtown, Pa., has been purchased by Morris Blank, and will be operated by the newly formed Brandywine Paper Corp., it was reported in an announcement released last week by the new company. Mr. Blank, the president of the new corporation, was for many years the head of Bicking.

Clarifying an earlier report, Mr. Blank said that he had purchased only Mill No. 1, as distinguished from Mill No. 2, which was acquired by United Container Co. The previous report had implied that United Container was the sole purchaser of Bicking Mills. The 79-year old Bicking mills have been in continuous operation since 1881.

Mr. Blank stated that the Brandywine Corp. will continue to manufacture the same grades formerly furnished by the No. 1 mill, as well as others. These grades include: chip and news board, tube and can stock, box boards and specialties, including indented packing, papers, sheathing and building papers, and others.

The officers of the Brandywine Corp. are: Morris Blank, president and treasurer; S. R. McClure, vice president; and Arthur J. Summers, secretary.



Sorg Rebuilds No. 3 for Higher Quality

Sorg Paper Co. of Middletown, Ohio, has just completed a major rebuild of its No. 3 paper machine as part of an overall program for modernizing the company's paper producing and finishing equipment. Reasons for the rebuild were to replace old equipment causing excessive maintenance and to increase maximum machine speed to meet demand for Sorg's wet strength tissue.

All engineering for this project including an engineering survey to determine changes to be made to the machine to meet their requirements was done by Patton Mfg. Co. Major features of the $200,000 project included: relocation of the Yankee dryer, installation of a new suction press, replacement of the entire paper machine drive utilizing the existing 200 h.p. motor, provision of a new line shaft and new drives for the couch, suction press, Yankee dryer and reel. The suction press is equipped with a 24 inch Manchester machine suction roll and is air loaded. Felt rolls are all rubber and fiber glass covered and have antifriction bearings. Felt runs were lengthened.

A new head box, supplied by Patton, utilizes the former slice and provides adequate head for increased machine speed. A new J. O. Ross high velocity hood designed to give 20 to 30 per cent increase in evaporation rate was also installed. Other improvements include a new Patton-designed horizontal track reel with G. E. adjustable speed drive, a four roll unwind stand ahead of the calender stack and rewinder, and a new crane to move rolls of paper from a roll storage section at the reel to the unwind stands.

Equipment for the project was supplied directly or indirectly by Patton. Startup was accomplished with minimum difficulty.

Riegel to Merge With Textile Firms

Agreements proposing the mergers of Fairtex Corp. and Branson Yarn Co. into Riegel Paper Corp. have been signed by the boards of directors of the three companies, it was announced by Frederick S. Leinbach, president of Riegel, and Lanier Branson, Jr., president of both Fairtex and Branson Yarn.

The merger of the two Lassiter affiliates into Riegel will be contingent upon consummation of the previously proposed merger of Lassiter Corp. into Riegel, which will be voted upon by stockholders this month.

Lassiter now owns 45 per cent of Fairtex common stock. For the remaining 55 per cent, of which Branson owns 45 per cent and other interests 10 per cent, Riegel will exchange 7,578 common shares. In addition, 2,800 Riegel shares will be issued in exchange for all the common stock of Branson Yarn.

Fairtex and Bronson Yarn manufacture metallic yarns and metallic chips as used in specialty fabrics. Their products are also used in floor coverings, plastics, and industrial fields.

Scott Charges Infringement of Patents

Scott Paper Co., Chester, Pa., has brought suit against the Fort Howard Paper Co., Green Bay, Wis., charging patent infringement. Scott charged that the Green Bay firm was "intentionally" infringing on Scott's patent in the manufacture, use and sale of absorbent paper.

The suit asked the Federal court to enjoin the Green Bay firm from further alleged infringement. Scott also sought triple damages and court costs.

J. P. Cofrin, president of Fort Howard, said in a reply to a query, "We are familiar with all of Scott's patents and are violating none. As far as I know, we have never been contacted by Scott on the matter."

Inland Container Starts Up Michigan Plant

Production got under way at Inland Container Corp.'s newest plant late last month. Located in South Haven, Mich., the plant converts corrugated fiberboard sheets into custom-manufactured containers for industrial and agricultural products.

A major part of the production will be devoted to the type of containers required by the Fruit & Produce Packing Co., a division of Inland Container. Paul E. Twyman was appointed field sales manager. Thor I. Ronningen, who was sales service manager at the Indianapolis office for over seven years has been placed in charge of production and sales service at the plant.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending August 27, 1960, at 92.1 per cent compared with 92.4 per cent revised, for the preceding week. The ratio was 95.4 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending August 27, 1960, at 92 per cent, compared with 92 per cent for the preceding week and 96 per cent for the corresponding week a year ago.

(Detailed Statistics on page 84)

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PAPER PEOPLE

T. Flanagan

C. Jager

KVP Sutherland Promotes Two

KVP Sutherland Paper Co., Kalamazoo, Mich., has announced the appointments of Thomas Flanagan as technical director of the Sutherland Division and Cobe Jager as Wax Division superintendent of the KVP Division.

Mr. Flanagan, formerly superintendent of KVP's Wax Division, had served in this capacity since March 1959. He had also served with the KVP Division as assistant superintendent of the Wax and Printing divisions, technical assistant to the vice president of sales, and technical assistant to the manager of manufacturing. In 1954-1955, Mr. Flanagan was transferred to the Research Laboratory of KVP Sutherland's Espanola, Ont., mill. Prior to this, he was assigned as a laboratory chemist with the KVP Division's Research Laboratory in Kalamazoo.

Mr. Jager was formerly superintendent of the wax production department at KVP. Prior to this, he was assistant superintendent of the wax production department for four years and a tour foreman in the Wax Division for six years. Mr. Jager began employment with the KVP Division in October 1923. During most of his nearly 37 years with the company he has been a member of the Wax Division, serving first as a wax machine helper and then wax machine operator before his promotion to supervision.

New Post Filled At Boise Cascade

Fred P. Thompson, Jr., general manager, Western region, has announced the appointment of James Maher of Glenview, Ill., to the newly created position of national accounts sales manager of Boise Cascade Container Corp., a division of Boise Cascade Corp., Boise, Idaho.

The appointment of Mr. Maher is in line with the expansion of facilities of the paper division of Boise Cascade into the Colorado area with a new corrugated container plant in Denver and the establishment of a fourth plant in San Francisco. The other two corrugated container facilities are located at Burley, Idaho, and Walula, Wash.

Brown Names McDonald To New Post

Promotion of John J. McDonald of Winchester, Mass., to the position of general manager of Brown Co.'s Sulphite Pulp and Floc Division has been announced by Leonard A. Pierce, Jr., president of the New Hampshire firm.

Mr. McDonald, who has been manager of pulp sales since March 1951 and is also manager of export sales for Brown Co., replaces Hugh D. Jordan who was recently elected treasurer of Brown. He will be responsible for the manufacture of dissolving and paper grade hardwood sulphite pulps as well as distribution and sales of these products.

Mr. McDonald joined Brown in 1927 after graduating from the University of New Hampshire. After several years with the research department, he joined the Pulp Sales Division as a technical service representative and in 1932, became pulp sales representative for the New York territory. During World War II, Mr. McDonald served with the Chemical Warfare Service. He returned to Brown in 1945 as assistant manager of the Pulp Sales Division.

C-Z Names Asst. Resident Manager at Camas

Appointment of a new assistant resident manager at the Crown Zellerbach mill in Camas, Wash., has been announced by corporation officials.

John J. Goss took over the duties of the position on Sept. 1, a spokesman reported. Mr. Goss had been assistant resident manager at the corporation's Bogalusa, La., division.

J. O'Brien

O'Brien Named Mgr. of Mfg. At Nepco's Potsdam Mill

John O'Brien has been named manager of manufacturing for the Potsdam mill of Nekoosa-Edwards Paper Co., producer of business papers.

In his new position, Mr. O'Brien will be responsible for all paper machines, finishing and shipping operations as well as production and quality control. He has been production control co-ordinator since 1957 and has been associated with the Potsdam mill since 1935. He is a graduate of St. Lawrence University.

In another recent announcement, the responsibilities of Charles Sigvardt, manager of manufacturing operations for the firm's Wisconsin mills, were extended to operation at the Potsdam mill. These changes were announced by C. H. Reese, vice president of manufacturing.

Westvaco Names Western Multiwall Bag S.M.

J. Frank Greeley has been named Western District sales manager for the Multiwall Bag Division of West Virginia Pulp and Paper Co., it was announced by Jason M. Elsas, southern regional manager. Mr. Greeley will make his headquarters at the company's Torrance, Calif., plant. He succeeds Frank L. Smith who has resigned to accept a position with another firm in an entirely different field.

J. F. Greeley

In his new position Mr. Greeley will be responsible for the sale of the division's products in the Western Sales District which includes California, Arizona, Nevada, Oregon, Washington, Idaho, Utah, Wyoming, Colorado and most of New Mexico. He will head a sales force working out of offices in Torrance, San Francisco and Denver.

Mr. Greeley is a veteran of 30 years experience in the multiwall bag industry and joined West Virginia in April 1958 where he was product manager in the Multiwall Bag Division.

Guimond Joins Parsons & Whittemore in England

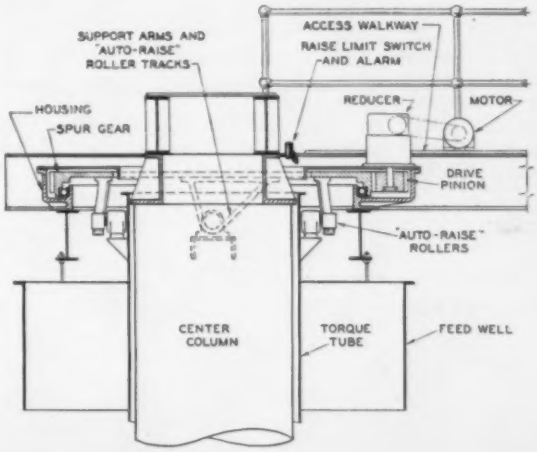
Francis X. Guimond, formerly manager of pulp manufacturing at Brown Co., has joined the Parsons & Whittemore-Lyddon organization in an executive capacity. Mr. Guimond's headquarters will be in the British office of the Pulp and Paper Mill Project Division, London, England.

Mr. Guimond is a graduate of the University of New Brunswick. Prior to his employment with Brown Co. in 1956, Mr. Guimond was with Canadian International Paper Co. for a period of 16 years in various technical and operating positions in the

PAPER MILL INSTALLS SECOND HARDINGE CLARIFIER FOR WASTE TREATMENT

The P. H. Glatfelter Company, paper manufacturers at Spring Grove, Pa., have gone a step farther in keeping wastes from its manufacturing processes out of the nearby Codorus creek. Recently, a $100,000 addition to its waste treatment plant was put into operation. It is a twin to a Hardinge Clarifier that has been in use for a number of years. Besides doubling the mill's waste treatment capacity, it will help remove more solids from the main effluent flow.

Each clarifier is 75 feet in diameter and 15 feet deep. They hold nearly a million gallons and will provide two hours' settling time for the main effluent on its way to the Codorus. The main waste from the mill is pumped to the clarifier as shown here. The clarifier removes fiber and clay residues from paper processing waters. The average amount taken out of the waste amounts to from 10 to 15 tons a day.



Typical Hardinge Clarifier Drive Mechanism for large, center column supported units. "Auto-Raise" feature lifts the scrapers in case of an overload, preventing breakage. Bulletin 35-D-14.

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LAKELAND
BIRMINGHAM

manufacture of dissolving and paper grades of pulp and newsprint at their mills in Temiskaming and Gatineau, Que. Before that he was chief chemist with the Quebec North Shore Paper Co., newsprint manufacturers at Baie Comeau, Que., and with Restigouche Co. at Campbellton, N. B.

Brown Co. Appoints Sulphite Production Mgr.

C. A. Cordwell has been promoted to the position of sulphite production manager at Brown Co., according to an announcement by Leonard A. Pierce, Jr., president of the Berlin, N. H., firm.

Mr. Cordwell has been closely associated with sulphite pulp production since joining Brown Co. in 1926 and served in various supervisory positions in the sulphite bleachery and sulphite pulp mill during the past 34 years. He was made superintendent of the mill in 1950.

Westvaco Elects Product Improvement Director

John A. Hoover has been named product improvement director of West Virginia Pulp and Paper Co.'s Charleston mill.

Mr. Hoover previously was paper mill superintendent.

In the new assignment he will work closely with the firm's customer service group and will be available for consulting and advisory assistance on papermaking problems.

He began his career with West Virginia at the company's Tyrone, Pa., mill in 1929. In 1937 he came to Charleston as boss machine tender and was made paper mill superintendent in 1947.

Harrison Heads Up Ind. Rel. for St. Lawrence

St. Lawrence Corp., Ltd., announces the appointment of Gordon F. Harrison as director of industrial relations. In addition, he is a vice president of Hinde and Dauch, Ltd., and will continue to be responsible for the industrial relations of that company.

Mr. Harrison has held responsible positions with Canadian Industries, Ltd., Canadian General Electric Co., Ltd., and the John Inglis Co., Ltd.

Mr. Harrison will make his headquarters at the Montreal head office of St. Lawrence Corp.

(Continued on page 82)

PJT NEWS OF CONVERTERS

P.C.A. to Make Molded Pulp Items in Calif.

Packaging Corp. of America, Evanston, Ill., has purchased a 300,000-square-foot former H. J. Heinz & Co. plant in Berkeley, Calif., for $1,800,000. The move establishes the company's first manufacturing operation in its west coast market area, and enables the firm to expand by one-third its output of molded pulp egg cartons, plates and trays, vegetable and fruit trays, and other molded pulp egg packaging materials.

Operations in the Berkeley plant will begin late in 1961, but full production will not be reached until later. The company plans to install several million dollars worth of specialized molding units and other equipment in its new plant. At full capacity, the operation will employ about 250 persons.

Two other molded pulp plants operated by Packaging Corporation of America are located at Griffith, Ind., and at North Kansas City, Mo.

Dennison Organizes Plastics Subsidiary

The Dennison Manufacturing Co. of Framingham, Mass., has announced the formation of a wholly owned subsidiary, Howard Plastics Co., Inc. The officers of this company are: H. C. Weeks, president; R. H. Dowd, vice president; and F. E. Swisher, treasurer. They will constitute the board of directors. C. E. Josselyn has been elected assistant treasurer and clerk of the corporation.

Howard Plastics Co. has purchased the land, buildings, and injection molding equipment of D & D Industries, Inc., at Leominster, Mass.

D. C. Huntington, president of Dennison Manufacturing Co., announced that the new subsidiary will engage in the manufacture and distribution of injection and blow molded products including decorating by the Dennison Therimage process. This company will specialize in packaging items allied to Dennison's established set-up paper box business.

Orchard Paper Names Mgr., Sales Development

Robert H. Orchard, president of Orchard Paper Co. of St. Louis, has announced the appointment of Walter N. Wilhelm as manager of sales development to broaden Orchard's position in the packaging field.

Plastic Papers, Inc. Announces Promotions

Stanley P. Warshaw, president of Plastic Papers, Inc., Hicksville, N. Y., has announced the following personnel changes: Dr. William Mullen, formerly plant manager, to vice president in charge of production; Kenneth J. Rawson, formerly general sales manager, to vice president in charge of sales.

Mr. Warshaw also announced the appointment of George S. Price as director of research. Mr. Price, a graduate of N. Y. U. in chemical engineering, was for nine years assistant manager of product development for Airkem, Inc., New York City, before joining Plastic Papers.

New Container Plant For Weyerhaeuser

Weyerhaeuser Co. will build a new shipping container plant near Olympia, Wash., Norton Clapp, president, has announced. He added that the plant is scheduled for completion early in 1961. About 100 persons will be employed. Paperboard will be provided by Weyerhaeuser mills at Longview, Wash., and Springfield, Ore.

Howard W. Morgan, vice president of the firm's pulp, paperboard and container group, said that the Olympia area was chosen "because of increasing demand for shipping containers in western Washington.

Weyerhaeuser has operated a similar plant at Yakima, Wash., since 1952. Other container plants are located in 16 states.

Paulsen Named to New Post by H&D

The appointment of LaVerne B. Paulsen as project manager on the manufacturing services department staff of Hinde & Dauch Division, West Virginia Pulp and Paper was recently announced by N. Fred Janson, department manager. Mr. Paulsen will be headquartered at H & D's divisional offices in Sandusky, Ohio.

In his new position, Mr. Paulsen will coordinate special projects among H & D's engineering services, technical, production, sales and product development departments.

Mr. Paulsen, a native of Davenport, Iowa, received his bachelor's degree in electrical engineering from Iowa State University. For the past six years he has been a project leader in electrical design at West Virginia's Charleston, S. C., paper mill.

K-C Elects Shipman Vice President

The election of James J. Shipman as a vice president of Kimberly-Clark Corp. has been announced by John R. Kimberly, board chairman. Formerly director of research, Mr. Shipman will continue to head the company's research operations in his new position.

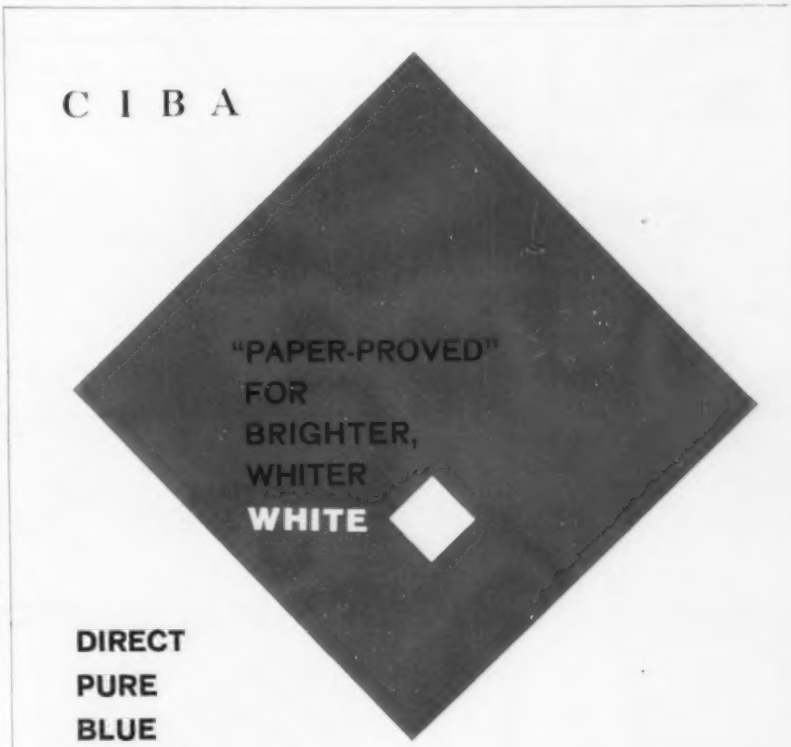
OBITUARIES

The August 15 issue of PAPER TRADE JOURNAL carried the obituaries of the late Messrs. William F. Thiele and John Reed Draper, Sr. Regretfully, the lines of these two items were intermixed so as to present confusion to our readers. The obituaries, as they should have appeared, are as follows:

William F. Thiele, 73, manager of Power at Consolidated Water Power & Paper Co. and president of Wisconsin River Power Co., died August 4 at the hospital where he was admitted Aug. 3 following a heart attack.

On receiving his B.S. degree in electrical engineering from the University of Kansas in 1909, he was employed by General Electric Co. until he joined Consolidated in 1920 as chief engineer.

John Reed Draper, Sr., 73, retired papermaker of West Groton, Mass., died of a heart attack August 4. Mr. Draper had a long career in the paper industry. At 16 he was a labor union secretary, he sold pulp for A. J. Pagel & Co. of New York and Buck-Kair & Co.; he was also general manager of the Carthage Pulp & Board Co., Carthage, N. Y., president of Buck Run Paper Co. in Pennsylvania, and president of Draper Paper Mills of Skaneateles, N. Y.



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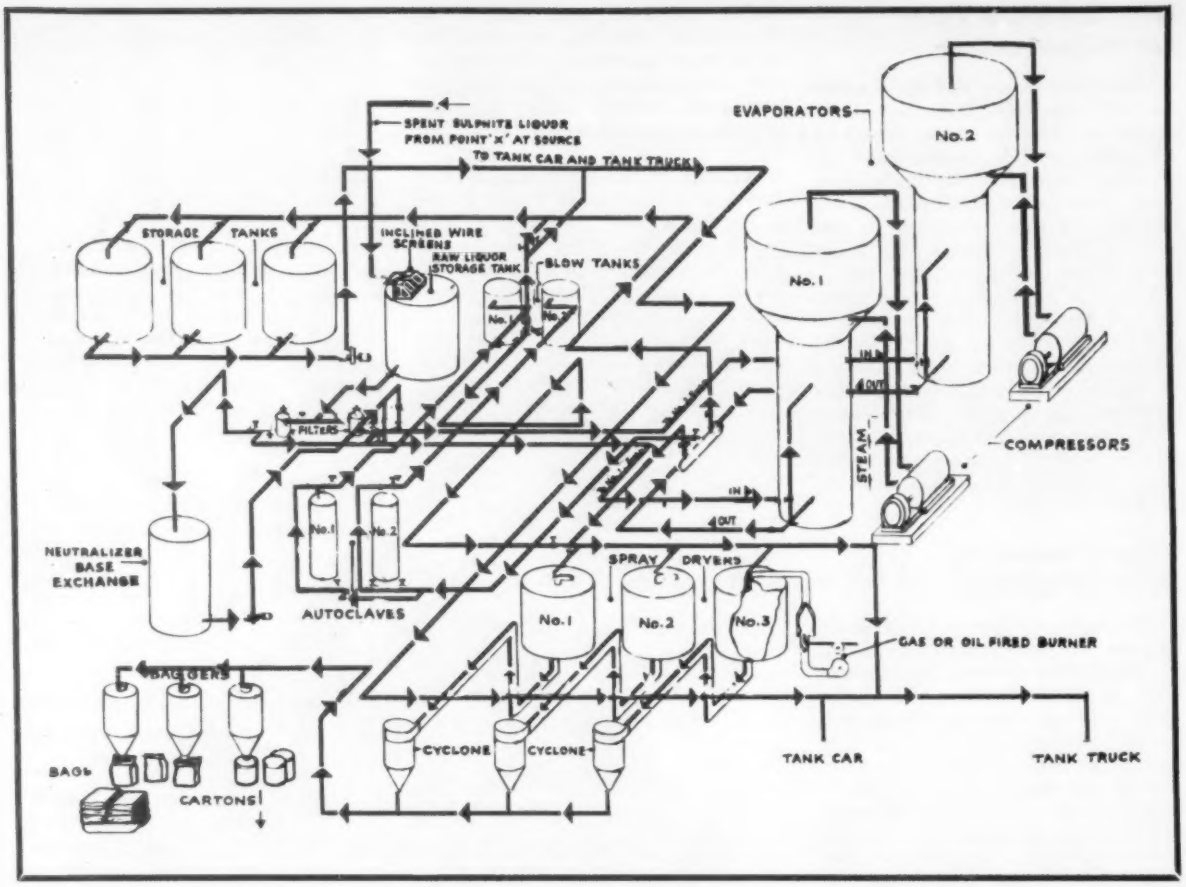


New Capacity for Spent Sulphite Liquor Products at Lignosol Chemicals

One of world's largest spray dryers and a new thermal compression evaporator more than double plant's output of lignin by-product chemicals.

Recent additions to the plant of Lignosol Chemicals, Ltd., Quebec City, Canada, during the company's tenth year of operation are the latest proof of the commercial success of this venture in recovering by-product chemicals from sulphite pulping. The plant additions include one of the world's largest spray dryers, another thermal compression evaporator and other processing equipment, as well as additional laboratory, office and shipping space. These have increased nominal capacity for manufacturing products in the form of 50 per cent liquids, from 100 tons per day to 200 and in the form of powders from 30 tons per day to 80.

How it Started

Lignosol Chemicals forms part of the Anglo group of Canadian companies. The other four are: Canadian Pulp & Paper Mills Ltd., Anglo-Newfoundland Development Co., Gaspesia Sulphite Co., and Dryden Pulp & Paper Co. This operation originated in investigations at the Gaspesia Sulphite Co., Chandler, Que. in 1943 by Northeastern Paper Products, the joint research group of the Anglo companies. The project was to recover spent sulphite liquor by-products, to which the name "Lignosol" was applied, on a semi-commercial basis. In 1950 Lignosol Chemicals Ltd. was formed, and its plant in Quebec City was opened in 1952.

Lignosol was first used for highway stabilization on the Gaspe Peninsula. Today, a steadily growing list of Lignosol products are used in dozens of different applications, not only in Canada but also in the United States, Latin America, South America, Europe and the Middle East.

From their three main properties, adhesiveness, dispersion, and an ability to form insoluble complexes with protein, have sprung such diverse applications as helping to manufacture cement, tan leather, drill oil wells and correct frost heaves on railroads. Lignosol is also used in the manufacture of gypsum wallboard, dyestuffs, insecticides, industrial cleansers, brick and tile, ceramics, refractory brick, foundry cores, paper-cores and linoleum cement.

The recovery of products from spent sulphite liquor has always presented two major difficulties. In the first place, the liquor contains a high proportion of water, which must be removed economically. In the second, it also contains calcium sulphate, which tends to form a hard scale on the heat exchanger surfaces during concentration, and soon prevents the necessary heat transfer.

For many years, these production problems greatly curtailed the recovery of lignin products. At Lignosol Chemicals Ltd., they have been solved through the use of thermal compression evaporators.

Thermal Compression Evaporators

These evaporators evolved from research work that started at Chandler in 1943. A pilot plant was built there, and from studies of its operation over a period of several years scientists patiently altered and modified the evaporator design until eventually it was suited to the efficient concentration of the liquor.

The advantages of thermal compression evaporators are many. First, they are simple to operate. Secondly, they operate at a low temperature differential without the introduction of reduced pressures. This tends to lessen the scaling problem, and makes unlikely any appreciable change in the chemical or physical properties of the product. Third, and most important, they operate with an extremely high heat economy.

At Lignosol Chemicals, spent liquor arrives by pipeline from the Sulphite mill of neighboring newsprint plant of Anglo Canadian Pulp & Paper Mills, Ltd., and is stored in an outdoor tank farm until required.

If its calcium base is to be retained, the liquor moves from the tanks directly to the evaporators, of which there are two. If its base is to be changed, it first enters a base exchange unit, where by precipitation the calcium is replaced by either sodium or ammonium.

Evaporation Stage

Each evaporator consists essentially of a condenser-evaporator and a steam-driven turbo-compressor. Vapors from the liquid boiling in the evaporator are withdrawn and introduced to the compressor, where their pressure and temperature are raised.

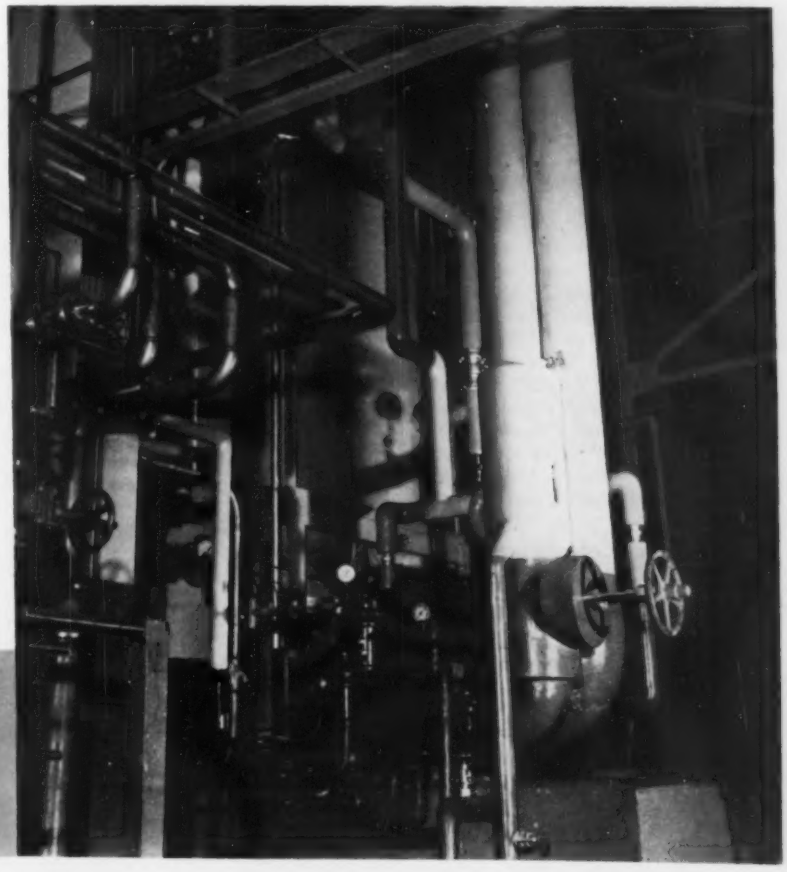
The compressed vapors are then piped into the condenser side of the condenser-evaporator. There they give up their latent heat to the boiling liquor in the tubes, and condense at the temperature corresponding to the pressure in the condenser. The condensed distillate is conveyed through a discharge pump to two heat exchangers, where its sensible heat is used for pre-heating the incoming feed liquors.

These evaporators are of the long-tube vertical type, with natural circulation. Their tubes are set in circular tube sheets, and enclosed in a cast iron shell. Since raw sulphite liquor is very corrosive, all parts exposed to it are made of stainless steel.

Liquor which enters the evaporators in the form of 10 per cent solids emerges as 50 per cent solids. At that point, it becomes known as Lignosol, and it moves on in one of two directions. Either it enters the processed liquor tanks for storage before drying or before shipment in liquid form, via drum or tank car, or it enters an intermediate stage known as formulation. Here, further chemical changes such as desugarization or desulphanation take place.

New Evaporator

The second thermal compression evaporator, which forms a major portion of the company's recently completed expansion program, has a nominal design capacity for produc-



This new No. 2 thermal compression evaporator is the largest unit of its kind used for evaporating spent sulphite liquor. Unit is 38 feet 1⅝ inches high.

This new laboratory spray dryer was included in the additions made to the plant.

ing 75 tons per day of concentrated liquor. It is 38 feet, 1⅞ inches high and 8 feet, six inches in diameter, and is the largest unit of its kind used for evaporating spent sulphite liquor. It was designed by the Bowen Corp., of Cambridge, Mass.

Like the No. 1 evaporator, the No. 2 consists essentially of a stainless steel, long-tube vertical evaporator body, used in conjunction with a steam driven turbo compressor.

Spray Drying

Lignosol destined for shipment in powder form is sent from the processed liquor tanks to the spray dryers, of which the company has three. All operate in a manner similar to those used for making powdered milk, that is by blowing atomized liquid through very hot, dry gas to achieve almost instantaneous transformation into fine, solid particles.

Lignosol in 50 per cent solids form enters the drying chamber through a spraying machine. Its precise rate of entry depends on the drying conditions required to meet specifications for particular products. The spraying machine device of a multivaned stainless steel atomizer wheel, spinning at about 12,000 r.p.m. Inlet temperatures range from 500 degrees F., for most products, down to about 400 degrees for those which are particularly heat sensitive. The sprayed liquid is changed to a powder in a matter of seconds.

Cold air to shock cool the particles is introduced into the chamber by an air sweeper. The particles then emerge in fine spheroidal form, ranging in color from tan to dark brown and containing between 2% and 4% moisture. They are recovered from the exit air stream by cyclone collectors, and bagged for shipment.

This shock cooling, and careful temperature control throughout, is of prime importance to the company, because excessive heat or prolonged exposure to heat could damage the end product. The controls which permit this regulation, and others which govern the feed rate just as carefully, enable the company to predetermine particle size and other characteristics.

The new spray dryer ranks among the largest in the world. A flat-bottom unit, capable of producing 50 tons daily of Lignosol products in powder form, it is 24 feet, 3 inches high and 24 feet in diameter. Its feed is the concentrated solution containing 50 per cent solids, which it receives at rates ranging from 70 lbs. to 140 lbs. per minute.

Commercial Applications

The sulphonated soluble lignin fraction extracted from the wood chips in the sulphite pulping operation may be modified to meet the requirements of many applications.

The original liquor is a calcium base and, as described, is concentrated to 50 per cent solids. A considerable volume is sold in this form for road stabilization, dust laying, frost heaving control, adhesives and binding agent for ores pellets etc., and linoleum cements. Where the economics of transportation become unfavorable, the product is shipped as a spray-dried product packaged, usually, in bags.

By converting the original calcium base to the ammonium salts of lignosulphonic acids, a tanning compound is produced. This, too, is supplied as a 50 per cent liquid or as a spray dried powder. Other industries also use this grade, where the calcium or sodium ion would be detrimental. Some beneficial effects on the soil have been claimed and the small quantity of ammonia liberated to the plant is of limited value.

The sodium salts of lignosulphonic acids are interesting and provide probably the most diversified group of products, though not the largest volume group. These products are sold mainly for their dispersion efficiency, and uses include dyestuffs, gypsum wall board, leather tanning, slurry cement thinning, brick and tile additives, insecticides and industrial cleaners. Like the ammonium salts, they are also good ferric iron sequestrants and emulsion stabilizers. Like the other salts they have the ability to insolubilize protein; hence their use in tanning of leather. Protein-lignosulphonate complexes are used as adhesives and fillers for accoustic tile and other boards.

Some miscellaneous applications are dependent on a combination of the physical principals mentioned and are chemical modifications of the products described.

Various metallic ion complexes of lignosulphonates are used to provide insoluble gels of value in chemical grouting. Products are devised to meet the increasingly exacting requirements of thinner for oil well drilling muds, and modified forms are produced to meet the specifications of the dyestuff producer.

All of these products are low priced in relation to other chemicals. It is unfortunate that prices are often predicated on the necessity of some producers to avoid stream pollution, a situation that may alter now that economically proven processes of burning concentrated liquor for heat values have evolved. While the price structure has inhibited development and research in use of these products, progress has been made and, eventually realistic pricing may benefit the forest products industry.

Oy Kaukas Finds Plastic Wires Are Fine

Finnish mill has used plastic wires for 5 years on pulp drying machines. Greatest critical factor, they indicated, was the influence of free chlorine.

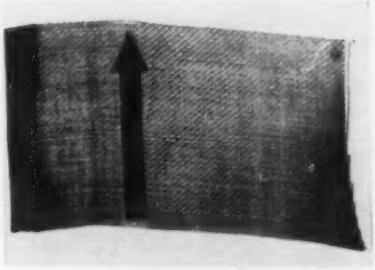
Olli Saarnio,
Oy Kaukas AB,
Kaukas, Finland

Oy Kaukas has used plastic fourdrinier wires since 1955 but not quite continually, however. These wires have been made of pure Perlon (European tradename for the polyamide polymer no. 6, or, more familiarly, Nylon) and woven in the same manner as endless felts. The thickness of the filament (warp and weft) has been 0.4 mm with nearly 23 warp and 20 weft threads to the inch. Almost all of the plastic fabrics have been made by the firm of VEB Filzund Filteruche in Rodewisch, German Democratic Republic (East Germany).

At Oy Kaukas, we produce 70,000 tons of pulp annually, mainly dissolving grade sulphite pulp but including some grades of bleached and unbleached sulphite pulps. The normal speed of our two machines equipped with plastic wires are 120 and 150 f.p.m. and their wire sizes are respectively 138 inches wide by 63 feet, and 100 inches wide by 47 feet. Each fourdrinier section has two suction boxes, one Rotabelt suction unit, a warm water surface table, and a 32-inch diameter couch roll. Consistency of the stock coming onto the wire ranges between 0.9-1.0 per cent at a pH of 3.5 to 4.

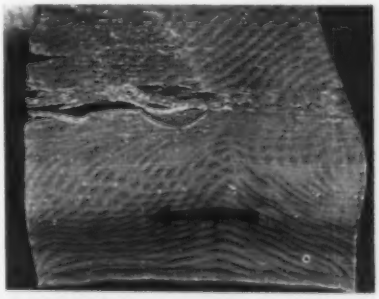
Longer Life

The useful life of Perlon wires was generally longer than ordinary metal wires, about 2-2½ times. The best Perlon wires have been on for 120-135 days. Once, when the fourdriniers had old and very worn out couch rolls, the life of Perlon wires was 3-4 times longer than that of metallic fabrics. However, the life of the Perlon wires did not increase much after installing new couch rolls. This would indicate that the old couch rolls had the greater effect of shortening the life of metallic wires. All plastic fabrics light in weight and very flexible. Thus, it was easier to mount them on the machine; they were less subject to damage as a result of creasing or knocking during wire changing.



Perlon plastic wire with the vulcanized rubber edge.

The stretch of plastic wires was about 2.5-3 per cent, but they stretched the greatest part of this amount in the first 30 hours of operation. There was very little additional stretch during the remaining part of their duration on the machine. The shrink in the cross-machine direction was also considerable. Because the plastic wires have this tendency to stretch and shrink, we order them in the minimum length and maximum width.



Metallic-plastic fabric, in which the metallic threads have parted.

We do not now use screw rolls to tension or guide the fabric because we found they shortened the life of the plastic wire. Furthermore, the Perlon fabrics have run straight without wrinkling in the absence of the screw rolls. Also, the guiding of plastic wire has not presented a problem to us. Old mechanical guides already installed on the machines have served adequately.

Reinforced Edges

The edges of our first Perlon wires were reinforced with plastic "tape," which was glued onto the both sides of the wire. Some fabrics have had rubber borders with one thick border thread inside. The plastic "tape" as well as the border thread didn't stretch as much as the wire itself. This explained the fact that the plastic wires would very often break in the first hours of use. We have since found that edges reinforced with vulcanized rubber borders without the thread inside are the best to keep the wire running straight and to prevent edge cracking.

Drainage is at the very least as effective as with conventional wires, and we have not found an appreciable difference between them. The pH of pulp does not affect the plastic wire; it can be as low as 3-3.5. More critically, however, the Perlon fabric does not resist the influence of free chlorine. If the pulp contains free chlorine in quantities of more than 0.14 g.p.l. (at 18° C) Perlon threads weaken quickly and after a few days the wire will be quite useless.

Plastic-Metal Wires

In recent years we have tried several plastic-metallic fabrics. They all had been woven so that there were warp threads of plastic and weft threads of metal, either phosphorbronze or stainless steel. In every case the metallic threads have broken in very short time. This, we found, is the reason the suction box covers wore out; due to the sandpapering effect of the broken strands.

After regular operation and many experimental trials of the synthetic and half-synthetic fabrics we are of the opinion that the best wire consists of pure plastic, the threads diameter being 0.4-0.5 mm and the edges being reinforced with vulcanized rubber. The life of this kind of wire has been much longer than that of metallic ones, it has been easier to drive, its drainage has been good and its price has been lower.

Four Possible Systems Available for Dispersion of Asphalt in Waste Paper

These systems though expensive and not perfect do permit the paper stock user to live with asphalt waste paper.

Philip S. Bolton,
Consultant

Asphalt, when used as the adhesive for combining paper, is a very efficient moisture barrier at a low cost so that until an equally efficient new material is discovered, which can compete on a cost basis, asphalt will be used. This is unfortunate for those paper board mills using old corrugated boxes as their basic raw material.

This grade of waste paper often contains asphalt laminated tape and as the cost of hand sorting to remove all of it is prohibitive, asphalt is likely to be present.

During the second world war the demand for paper board packaging by the armed forces was so great that it could not be met by virgin kraft pulp production and the reuse of fiber was imperative. Cleaning the used fiber for reuse was a serious problem and asphalt as one of the contaminants was particularly troublesome, for it could not be removed by conventional screening and settling methods. Not only did the presence of asphalt result in an unsightly board covered with black spots but it also reduced the efficiency of the paper making machinery by filling up felts and wires.

MR. BOLTON who prepared this article at the request of the editors, was research director for Robert Gair Co. for many years prior to his recent retirement. In this position he had broad experience in waste paper utilization, particularly for paperboard manufacture.

IFC Developed Process

To attack the many problems in the use of reclaimed fiber and to improve the products made from it, the paper board manufacturers set up a cooperative effort known as the "Jute Group." Its members agreed to share their "know-how" and to finance a research program. As a part of this program, a project on asphalt was initiated at the Institute of Paper Chemistry. This resulted in a method of treating the repulped corrugated boxes so that while the asphalt was not actually removed, it was so finely divided and dispersed that it no longer gave trouble on paper making equipment and was apparent in the sheet only as a slight darkening of the brown kraft color.

Based on these results, a patent (1) was obtained and a commercial system was designed. The Waldorf Paper Products of St. Paul, Minn., a member of the "Jute Group," made the first installation. Results, while not perfect, were considered commerically satisfactory, and the "Fiber Conservation Corp." (2) was set up to exploit the patent.

This system (3) consists of a dewatering press fed with defibered stock from standard deckers at 10 per cent consistency and discharging at 35 per cent through a screw feeder to a continuous digester. Steam is added here to obtain pressures of 50 to 60 p.s.i. with a temperature of 300° F. After a retention time of from three to four minutes, the cooked stock, under pressure, passes to a disk refiner from which it is discharged to atmosphere through a cyclone.

At the cyclone water is added to cool and dilute the stock to pumping consistency. In the cooking chamber at 300° F the asphalt becomes fluid and at the 35 per cent consistency the fiber-to-fiber rubbing spreads it over the fibers. This action continues in the disk refiner while the explosive effect of the discharge to atmospheric pressure furthers the dispersion. In addition, some of the volatile oils are steam distilled off at the cyclone, which reduces the stickiness of the asphalt particles.

Operating Data

The "know-how" developed on solving operational problems was made available to all members of the "Jute Group" with the result that a number of units were installed before the war ended and thousands of tons of war supplies were shipped in fiber containers using test liner produced from reworked fiber.

As of today, this process is in use by 18 companies with installations of seventeen 75-ton units and twenty-eight of 150 tons capacity, producing 6000 tons of reclaimed pulp per day. From the reports submitted by sev-

Table I Operating Data, Fiber Conservation System

Decker consistency	10%
Press consistency	35%
Steam pressure	50 to 60 p.s.i.
Temperature	300°F
Retention time	3 to 4 minutes
Power	2.5 to 4 H.P. days per ton
Steam consumed	1500 to 3000 lbs. per ton
Maintenance	$0.25 to $0.70 per ton
Installation cost (75-ton unit)	$175,000 to $225,000
Installation cost 150-ton unit)	$200,000 to $350,000

eral of these mills the data in Table I have been made available.

This process, while not a perfect solution to the problem of asphalt contamination, is well established as a method of producing a commercially acceptable stock from old corrugated boxes and similar waste paper grades. The stock is suitable for the production of the brown colored, high-strength boards as produced on cylinder machines and for the manufacture of corrugating medium. It is also usable as under liner, back liner, and filler for boards having light colored top liners. Satisfactory results with this system are dependent on proper operation at rated capacities and on properly designed auxiliary equipment. Poor results are usually traceable to loading units beyond their rated capacities or to inadequate stock preparation or cleaning equipment in the system.

Disk Refiner Eliminated

During the past ten years other approaches to the asphalt problem have been suggested and much experimental work has been done. At least one other system has been developed to commercial operation (4). This process was described in a recent issue of Paper Trade Journal (5). It utilizes the continuous cooking method but differs from the previously described process in that the digester is of different design, the pressure used is somewhat higher, and the disk refiner is replaced by a special discharger. The elimination of the refiner may account for the lower power requirement reported. Operating data for this installation are given in Table II.

The results from this system compare favorably with the first system described, but are not particularly superior.

High Pressure System

A quite different approach on which a considerable amount of semi-commercial development work has been done is the use of the very high density presses which were first introduced to the industry to defiber chips in certain semi-chemical wood pulping processes (6).

It was found that if defibered and cleaned waste paper stock was subjected to sufficient pressure to produce 50 per cent dryness and if the temperature was above the flash point of the water in the stock, the asphalt present was dispersed. Production-scale experimental work done on high density presses showed good promise if certain conditions were maintained. The installation, however, did not include essential auxiliary equipment to insure proper conditions. Some required equipment was not commercially available without redesign and, as a result, no operational cost data could be developed. For proper press efficiency it was found that a consistency well above that from conventional deckers was required. This feed consistency should be above 15 per cent and it is an interesting fact that while there are many devices that will produce 8 to 10 per cent consistencies, there are none that will dewater defibered waste paper stock from 3 per cent to 15 per cent. Such a device is required if the high density press is to have enough capacity for economical operation. Discharge consistency at a temperature above 210° F with subsequent dilution with hot water and a pass through a refiner showed good asphalt dispersion and in addition gave the stock improved qualities.

Chemical Approach

The other approach to the asphalt problem is by the use of solvent and dispersing chemical action (7). Unlike the methods previously described, this process requires the constant addition of chemicals. This cost would be offset in part, at least by the fact that no expensive equipment is required. * The process consists of adding an asphalt solvent and a dispersing agent to the defibered paper stock at three to four per cent consistency, a temperature of

Table II Operating Data, Black-Clawson System

Capacity	180 tons per day
Thickener consistency	7%
Press consistency	35%
Cooking pressure	80 p.s.i.
Temperature	300° F
Steam consumption	1660 lbs. per ton
Power	1 H.P. day per ton
Product	Corrugating medium

125° F, with suitable agitation during a retention time of 30 minutes. Complete dispersion is possible if these conditions are met. For the operation to be both satisfactory and economical, the stock must be under constant and vigorous agitation for 30 minutes at 125° F, which can be accomplished in holding chests equipped with agitators with sufficient power to turn the stock over vigorously. Short semi-commercial runs (8) have shown that excellent dispersion can be obtained, but to date no sustained runs have been made which would determine costs, although indications are that they will be between $4.00 and $6.00 per ton.

Summary

In summary, as of 1960 there are at least four possible systems for dispersing asphalt in waste paper stock. Two of these utilize continuous digesters and are both in regular use. Of the other two, one uses high density presses while the second requires the addition of chemicals. Both of these methods show promise, but are yet to prove themselves in production.

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(1) U. S. Patent No. 2,697,661.

(2) Fiber Conservation Corp., 230 N. Michigan Ave., Chicago, Illinois.

(3) Asplund Process: American Defibrator Inc., 405 Lexington Ave., New York 17, N. Y.

(4) Black-Clawson Co., Middletown, Ohio.

(5) **Paper Trade Journal**, July 18, 1960.

(6) V. D. Anderson Co., Cleveland, 2, Ohio.

(7) R. C. Barbour, 300 Pelham Rd., New Rochelle, N. Y.

(8) **Paper Trade Journal**, January 18, 1960.

* Editor's Note—There should also be considerable saving in steam as the process temperature is much lower (125°F versus 300°F). Further there is the elimination of the considerable royalty per ton charged by the Fiber Conservation Corp. for use of its process.

"Quintuplets" Help Nekoosa-Edwards Generate Chlorine Dioxide

Bugaboos in proportioning chemicals for ClO_2 generation are metering accuracy and leakage. New multi-liquid blending pumps solve these problems.

Nekoosa-Edwards Paper Co., Port Edwards, Wis., papers has found that generation of chlorine dioxide introduces a number of rigid proportioning requirements, including:

1. The necessity for accurate feeding of small quantities of liquids.

2. Large and small adjustments have to be made in the flow rates of all reactants on a proportional basis to increase or decrease the quantity of chlorine dioxide produced.

3. Small adjustments must be made in flow rates to compensate for concentration changes.

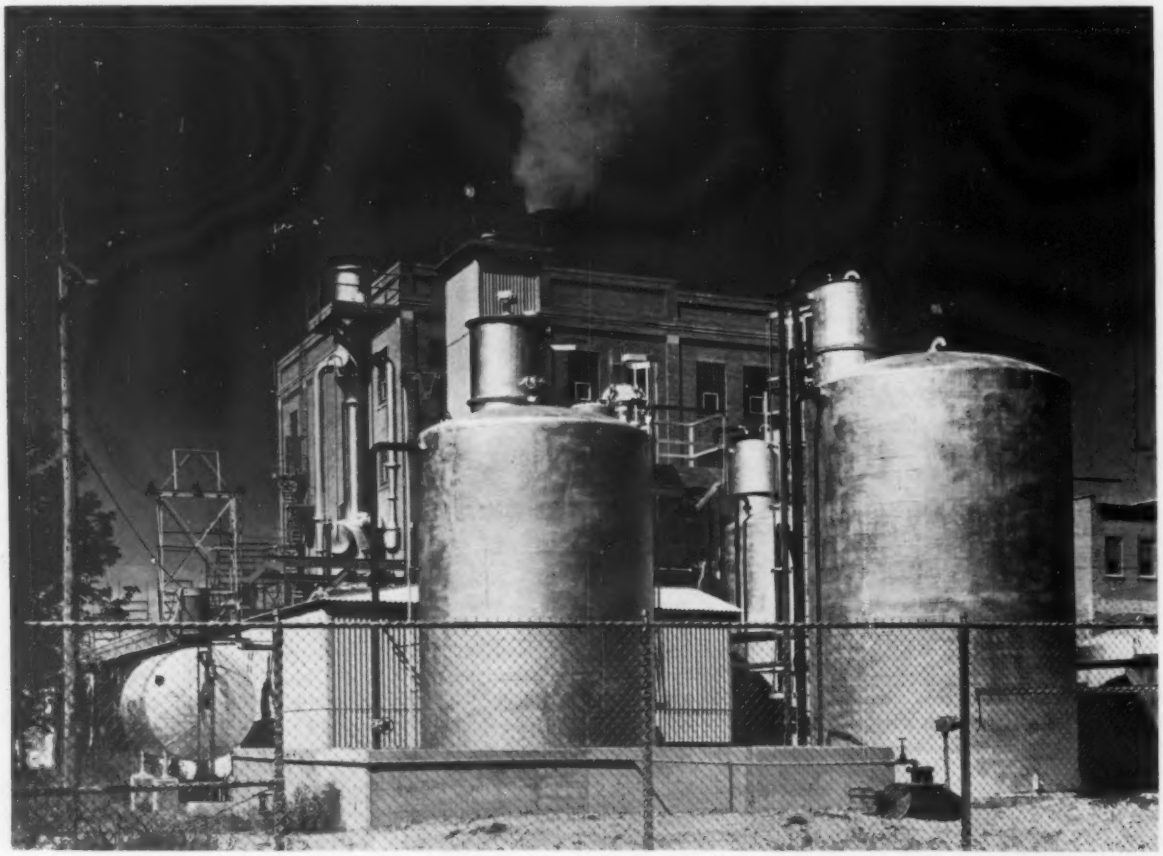
4. Proportioning equipment must be able to safely handle reactants that are highly corrosive. (For example, methanol is volatile and inflammable; sodium chlorate is a very strong oxidizing agent.)

Pump Selections

Nekoosa-Edwards' process engineers concluded that conventional pumping equipment was not the most satisfactory answer to these requirements. It appeared that a specialized type of metering equipment was necessary—leakproof, corrosion resistant, readily adjustable, and accurate.

Nekoosa-Edwards had learned that a manufacturer of chemical process

Exterior view of chlorine dioxide generating plant, Nekoosa-Edwards Paper Co., Port Edwards, Wisc.



equipment, the Process Equipment Division of Lapp Insulator Co., had developed a quintuplex multi-liquid blending version of their Pulsafeeder units.

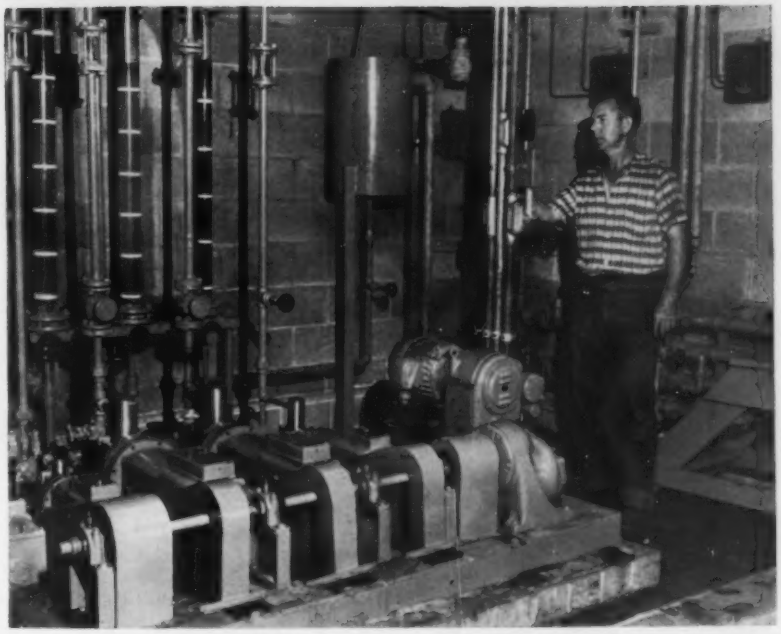
The Pulsafeeder was originally designed to proportion, blend, dilute, treat, pump and accurately meter "hard to handle" liquids in the chemical industry. However, Pulsafeeders are used in the pulp and paper industry to automatically adjust pH of stock, handle clay and titanium dioxide slurries, resin, alum, colors, Separan and other additives, as well as the handling of sulphuric acid for felt treatment. The machine's features of no leakage, inbuilt pressure relief valve, all working parts submerged in oil, adjustment of flow while idle or operating led Nekoosa-Edwards to believe that, in its new form, it might prove ideal for their chlorine dioxide generating system.

Chlorine dioxide is produced at Nekoosa-Edwards Paper Co. by the Solvay method. This method involves the controlled reaction of sodium chlorate solution, sulphuric acid, and methanol to produce chlorine dioxide gas with subsequent absorption of this gas in cold water. The chlorine dioxide solution is stored and used as required. Maximum storage amount for normal useage would handle six hours demand.

The Pulsafeeder CPQ assembly of five pumps feed the chemical reactants to a chlorine dioxide generator. All ingredients for the generator are drawn from storage by the various Pulsafeeder units. These reactants are brought together in the properly controlled amounts to optimize the conversion of sodium chlorate to chlorine dioxide. For a given quantity of ClO_2 to be generated each ingredient is predetermined and manually set on each Pulsafeeder unit.

Four Different Sizes

Nekoosa-Edwards' feed pumps are of four different sizes and capacities properly sized for the flow and range of the reactant each handles. The quintuplex unit is driven by a single motor through a variable V-belt drive, therefore the rate of feed can be proportionately increased or decreased for all the reactants by one adjustment. Each unit is individually adjusted to a definite ratio between the pump output and drive speed. Once the ratio of all chemicals handles has been established, the variable speed drive can vary the overall volume in step with a changing process condition.



Lapp Pulsafeeder CPQ assembly of five pumps which is used to feed chemical reactants to the chlorine dioxide generator.

The Pulsafeeder pumps are of the positive displacement type. A reciprocating piston within each unit forces oil to move a diaphragm forward and return. The back stroke takes the feed chemical into the reagent head through suction check valves. The liquid is forced through the check valve on the forward stroke. The diaphragm isolates the chemical being pumped within the reagent head and the check valve. Because of this, no other parts need be of a chemically stable material. The piston does not incorporate a stuffing box since only oil is handled, and, if a leak exists, the oil is automatically replaced by a vacuum compensator valve.

Adjustment of Rate

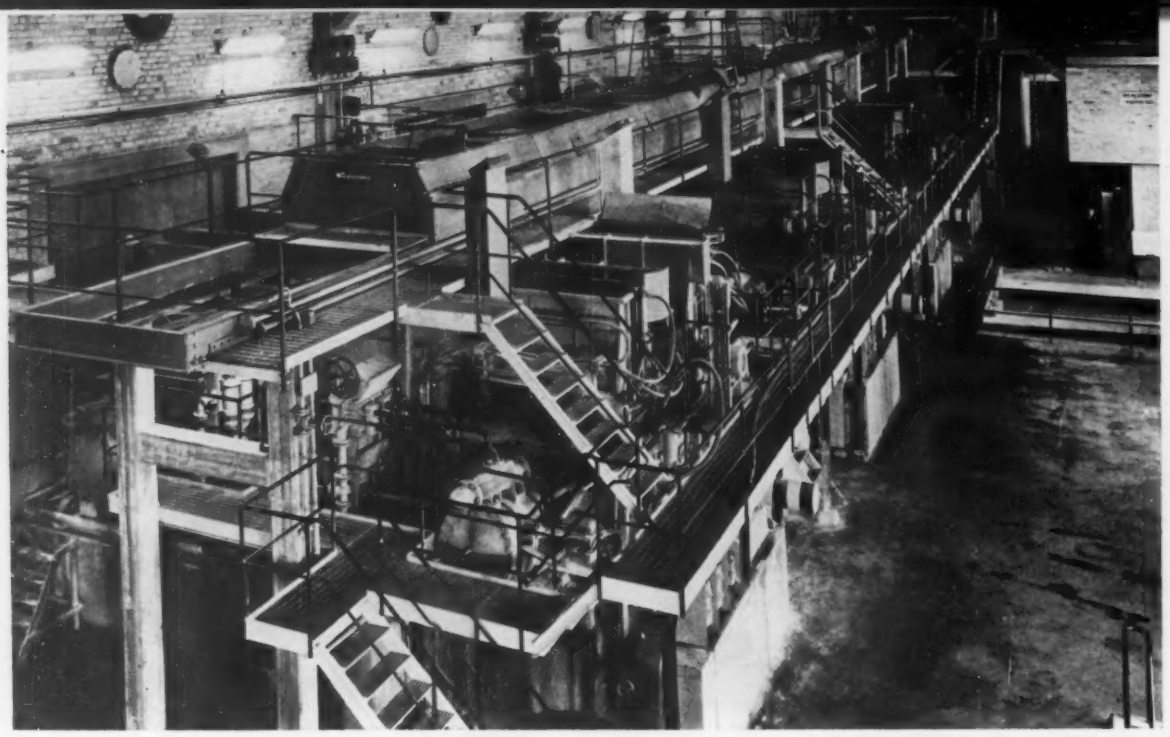
Since the pumps are positive displacement, accurate flow can be set and maintained. Small adjustments in the feed rate of each unit are made by simply turning a calibrated knob to adjust the stroke length. The CPQ quintuplex units have an oscillating arm variable lever adjustment. The indicator is a direct reference to output; it is unnecessary to stop the Pulsafeeders to make a change in output as all units are readily adjusted while running or idle over a range of from zero to 100 per cent of rating. Since the adjusting screw is geared to the indicator, a reference point is always available.

To prevent corrosion from the materials being metered, all parts in contact with the pumped liquid are of special alloys. The diaphragms are Teflon, the reagent head is of Stainless Steel AISI 316, Carpenter 20 and Hastelloy C are used. The various materials are resistant to the corrosion problem inherent in each fluid handled.

Experience with Pumps

After over three years of 24-hour-a-day service, the feed system is proving worth the effort Nekoosa-Edwards made to create the application. Leakage has been non-existent. As sodium chlorate, one of the chemicals being handled, is relatively expensive, even ordinary leakage of from one to three drops per stroke would result in yearly operating loss of several hundreds of dollars. Since the Pulsafeeder units have no stuffing boxes, replacement of packing has been eliminated. Corrosion has not been a problem as all liquids are metered through a reagent head characterized for the chemical it handles.

Spare parts and replacement costs for the Pulsafeeder unit installed in 1956 have amounted to four per cent of the unit's cost each year. After rectification of normal minor start up problems, total replacement of parts for the quintuplex pump has consisted of one diaphragm and a spare check valve during the more than three year period that the unit has been in use.



With this Swedish automatic wood feeding system . . .

Two Men, Eight Grinders Produce 280 Tons of Groundwood Daily

Completely new system introduced in 1958 at the Ortviken groundwood mill of Svenska Cellulosa AB is operated entirely from a central graphic control panel.

Requested: reduction of labor costs to an absolute minimum with uninterrupted continuous production from the grinders. *Received:* a system that enables two men per shift to feed eight magazine grinders producing 280 tons of groundwood per day. Moreover, it is estimated that up to 16 similar grinders could be handled by the same two men.

The grinder room of the Ortviken newsprint mill, which was new in 1958, has a line of eight Great Northern Waterous grinders each having a daily capacity of 35 a.d. tons of newsgrade pulp. The wood handling system, completely automatic and continuous, for this grinder room was designed and built for Ortviken by the Stockholm (Sweden) engineering firm of AB Nordstroms Linbanor. At present, the grinder room occupies per shift two men for feeding and one man for supervising the operation of the eight grinders.

The Ortviken is one link in the vast Svenska Cellulosa Aktiebolaget chain of mills. Ortviken forms part of the Sundsvall group within the Svenska corporation, and which group is located near Sundsvall, in east central Sweden, on the great Gulf of Bothnia.

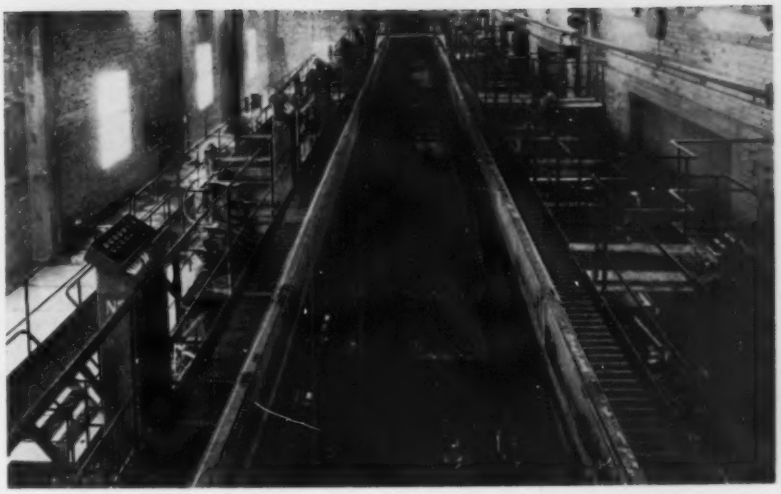
Here's How It Works

Five-foot logs are carried by a conveyor from the slasher in the wood room to a buffer bin right outside the grinder room wall. The eight grinders are arranged in two rows with a main conveyor running between the two rows and about three feet above the top of the grinder's wood charging magazines. This conveyor, starting as a "live bottom" in the buffer bin, feeds logs out through a slot in the side of the bin. Thanks to the stacking of the logs in the bin, the conveyor will emerge from the bin filled with a continuous mat of logs placed perpendicular to the direction of travel.

There are in all eight such magazines, which may be called central magazines since they are placed right between and in level with the wood charging magazines of the two rows of grinders. Central and charging magazines have the same volume.

The main conveyor is composed of a number of chain conveyor sections. These are so arranged that a space can be opened between the conveyor sections by the movement of two stretcher rolls. When such a space is made to open, all logs will tumble down into it and fill the central magazine below. When this magazine is

The central wood conveyor, emphasizing a closed central magazine in the foreground, services 2 rows of grinders.



filled, the opening between the sections is automatically closed and the logs move further down the conveyor to the next central magazine in need of charging.

Control to Grinder Magazine

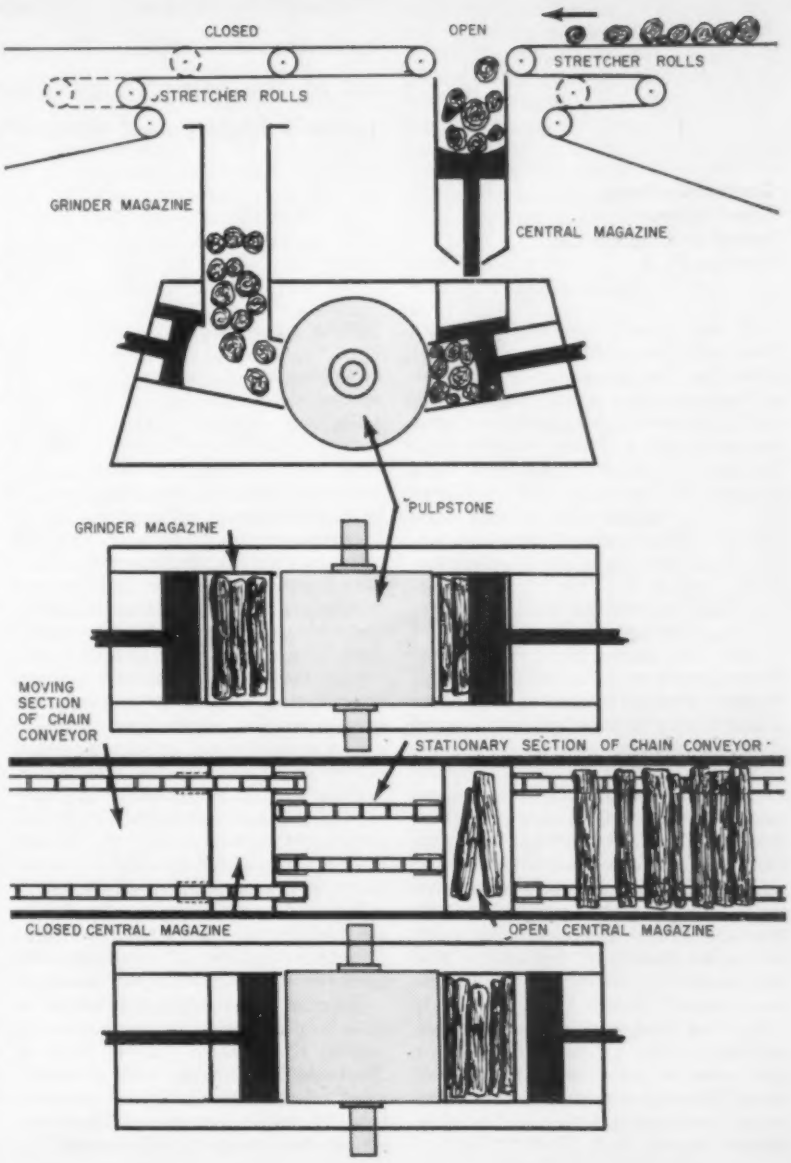
When a grinder pocket is empty the conventional controls of the Great Northern grinder will cause the pressure foot to move back and the lid of the grinder pocket to slide away to allow a new charge of logs to drop down into the pocket from the wood charging magazine above. In conventional installations the charging magazine is then refilled by manual picking of logs from a flume and placing of them one at a time in the magazine. In this new installation the empty charging magazine is refilled in one operation by a pressure foot that automatically pushes the whole content of a central magazine over into the charging magazine. Each central magazine serves two charging magazines, which means that the charge can be pushed out in either two opposite directions to fill any one of the two charging magazines.

When a central magazine has been emptied in this way, the conveyor above will automatically open as described earlier and stay open until the magazine has been refilled from the conveyor. During this operation the bottom of the central magazine is first raised automatically and then lowered gradually so as to avoid entangling of logs during transfer from conveyor to central magazine.

Control System

All these operations including the normal charging automation of Great Northern grinders are combined into a single system automatically controlled from a graphic panel on a mezzanine floor in a corner of the grinder room. Thus the system is fully automatic all the way from the conveyor. Each grinder can, however, also be operated by push buttons from a separate control console next to the grinder. These consoles are placed at conveyor level.

The conveyor itself is operated by push buttons to ensure an adequate supply of logs to the magazines. It would, however, meet no special difficulties to also make this process automatic if this should prove desirable.



MAINTENANCE SERIES
NUMBER 26

Know-How, Spare Parts Mean Better Slitter & Winder Maintenance

Two-drum surface rewinders are spotlighted in this maintenance article. The author includes in his discussion all of the complex auxiliary components that comprise today's high speed slitters and winders.

Carson D. Cash,
Sales Engineer,
Samuel D. Langston Co.,
Camden, N. J.

Rewound rolls are all important. They are the only result of the mill operation the purchaser of the product sees or cares about. Usually, the mill with a workable plan for scheduling and clean and neat machinery is the one turning out good rolls. Let's discuss the machine that produces the end result—the slitter and winder. This is one of the basic machines in the industry whether behind a paper machine, in the finishing room converting rolls for shipment, or salvaging rejected rolls.

Pulp and paper mills, in general, have undergone a complete transit from slow speed manual operation to a new highly productive push button complex. Slitters and winders have felt this change in condition by growth in speed, width, component size, and complicated auxiliary components. The lights, buttons and dials that overcrowd a panel layout are sentinels of an extremely expensive investment in capital equipment. Yet, the panel board is only a supplement to the old standby of the master mechanic—visual inspection and maintenance.

For the most part, we will be concerned in this article with surface rewinders of the two drum type, since the majority of the winders going into plants today are of this design.

Slitter Assembly

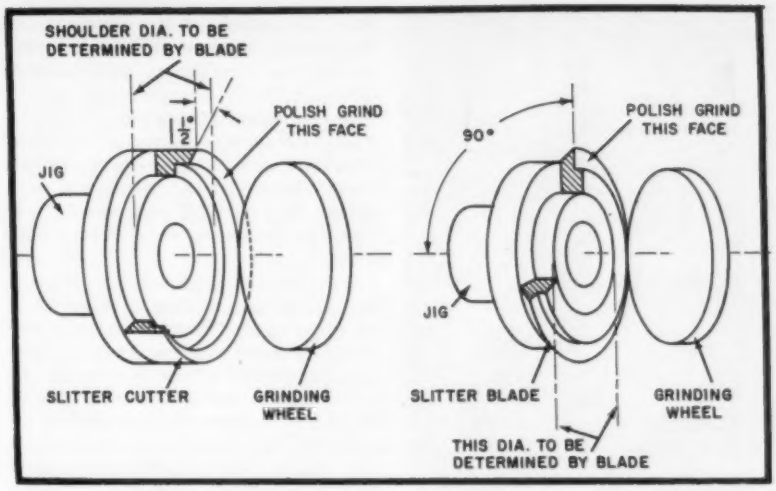
An important feature of any rewound roll is the slit edge. In some mills one constant complaint is excessive slitter dust. Usually, a ragged edge and a high dust level go together and are the result of poor slitting. The concept of good slitting is to shear the material in a clean and effective manner, such as with a pair of scissors. Ragged and dusty edges indicate a tearing action, whereby loose fibers of the material are pulled free. If a score cut is applied incorrectly, such a condition also occurs; like tearing a piece of paper after scoring with a blunt object, such as an improperly applied or dull score cutter or grooved platen roll.

Poor slitting performance is a clue to misapplication of the slitters themselves. Often, however, this is due to another cause, disregard of manufacturer's recommendations on sharpening and setting up the blades in position for the cut. Absolute adherence to manufacturer's recommendations results in optimum performance.

Keeping the slitters or scorers in a safe place will be conducive to longer life. Many plants have a "bookcase" or storage rack arrangement off to the side of the winder area for such a purpose. A spare set of slitters, properly sharpened, is readily available for a complete change-over whenever required. A good slitter grinder is a sound investment, and many such machines are available. Try to restrict its duties to slitter grinding and like operations. Train personnel in the proper handling of slitter equipment when installing and removing them from the winder. Dropping the blades on concrete is obviously not conducive to long life and may affect the mounting assembly and adjustment screws. Clues to poor handling are chipped blade edges, loose blades, stripped threads, and clogged mechanisms necessitating the operator to use excessive torque on the wrench in order to tighten the slitter assembly during set-up.

It is also good practice to check the mechanical condition of the slitter assembly (adjustment screws, bearings, etc.) in the maintenance shop when the slitters are returned for sharpening.

The Langston Co. issues instructions, such as shown in the sketch of our bulletin covering sharpening of the slitter blades, for both friction and power driven types. Note that the recommendations cover not only the proper angle of grind on both blades, but also the way in which the fixed angle slitters are set. Most manufacturers of slitters and wind-



How to sharpen slitter cutters and blades. Note the proper angle of grind and the manner of setting fixed angle slitters.

ers have such information available for use by your personnel.

Recent developments have brought about the use of more coated and impregnated stock. Some of these materials have been known to deposit on the slitter blades at the point of contact and, if allowed to build up, can mark the sheet and impair the proper operation of the slitters. A wiping device, saturated with a solvent, will frequently clean such particles off the blades, and it is best to clean and check the slitter blades, slitter boards, and spreader arrangement at least once a shift.

Spreader Assembly

On some slitting operations, when running narrow widths across the roll, it is impossible to break the slit rolls free without the use of wedges. Assuming that the slitting or scoring station has been properly set up, setting of the spreader arrangement can be the controlling factor in the proper separation of the rolls.

There are several types of spreaders, the bow, individual or finger, individual roller, and rotating spreader roll. Each has its place in separating the cut and preventing the web from interleaving as the roll is rewound. On surface sensitive finishes care must be taken to prevent marring the finish, and a revolving spreader —either the roller type or Mount Hope type—is used. Because of size, which is sometimes limited due to space available in the winder, often the rotating spreader is subjected to extremely high rotating speeds. It would do well to check the elements of the roller spreader each time the slitters are removed for sharpening.

The Mount Hope rotating spreader roll comes in much larger diameters than a roller spreader and is susceptible to wear on the rubber covering and at the individual anti-friction bearings which are sealed at the factory. A continuous check on these two points of wear at definite intervals will forewarn possible failure of a component. The best insurance against unscheduled shutdowns from such failure would be to have a replacement Mount Hope roll on hand.

Rewind Shaft Assembly

When the rewind shaft is in position on the winder, it is held in place by a bearing bracket assembly on each end. Due to running tolerances, there is a certain amount of freedom; however, this is measured in thousandths of an inch. One element of the winder that a maintenance crew should check monthly is amount of lateral movement of a rewind shaft, while "locked up" in the rewind shaft brackets. Frequently, roll weave or "off-sets" during the rewind is a result of this excessive lateral travel.

At the same time, a check should be made of the latch arrangement on these brackets. Constant latching and possible rough handling has its effect on these parts.

Also, most brackets use replaceable inserts which are specifically designed to take the wear of the shaft journals. Since they are a wearing member, they are subject to replacement, and once a year is not unusual in some plants.

The rewind shafts are especially prone to rough handling, and a common problem in any plant is bent journals. Often, this is due to improper use of a rewind shaft for lifting a full roll out of the winder. Also, it can be due to improper handling of the shaft as it is taken out of the rewound roll, such as being allowed to fall on the journal itself against the floor or machine frame. Some rewind shafts are worth several thousands of dollars, particularly the newer collapsible types. Often, the application of a roll ejection mechanism and a roll lowering table protect this investment. The simple operation of replacing the rewind shaft with a piece of pipe will permit lifting the rewound roll out of the machine with an overhead hoist. Just a simple sling arrangement could also be utilized, suspended from a hoist, to support the collapsible shaft as it is pulled out of the rewound roll.

In many mills, due to improper handling techniques, there is the ever-present problem of bent rewind shafts, or rewind shafts where the journals are eccentric with the main body of the shaft. On a rewind shaft, bending is usually restricted to the journal area. A good place to check would be a few inches in from the end of the journal. A rule of thumb is to have the journals straightened if there is a run-out greater than 1/32 inches.

In some mills, many different rewind shaft diameters are used in a week's operation. It is often the case that the shafts not in use are thrown aside and are sometimes in the way of material handling equipment. How many times has a lift truck or "broke" car run into a shaft in your mill? It would be better to find a convenient storage area, and again the "bookcase" principle is a good one. A rack built off to the side would serve the purpose quite adequately.

Rotating Elements

During the rewinding, the roll of paper is subject to control from three points of contact, the two rewind drums and the rider roll. The two drums deliver drive torque necessary to wind the roll of paper to the proper density characteristics, and the rider roll—in small measure—acts to stabilize the rewound roll and to modulate the torque relationship between the drums. All three drive elements can be either belt driven or gear driven, depending on speed and load considerations, and also on whether or not anti-friction bearings are used on the winder. Sleeve bearings in winders of not too many years ago just are not suitable for today's high operating speeds and large mill roll diameters with their amazingly high weights.

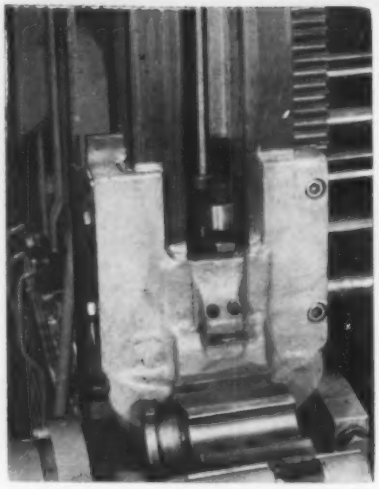
It is probable that the machinery

manufacturer sized the bearings correctly, since the selection of bearings should be the most conservative part designwise in the entire machine. The design ratio of the rewind drums diameter to width of machine, as well as choice of materials effects the capability of the rewind drums to hold deflection to a minimum during high speed operation. Lubrication of the bearings is more likely to be crux of any problem definitely traced to the rewind drums. Often, the use of a grease too heavy for the application is the main cause. Indication of poor lubrication practice or improper lubricant is reflected either by heating up of the bearing and bearing housing, or leakage around the bearing cap or seal. If such signs are ignored for long, the bearing will eventually fail and quite likely at the most inopportune time. It cannot be urged too strongly to check the machinery manufacturer's recommendations and deal only with a service representative of a competent oil company. The use of color coding in the form of tape or paint next to the grease fittings will indicate to the "oiler" just what type of grease or special lubricant will be used at that point. Don't look for bargains in the purchase of greases and oils.

The next point of concern, after having solved the type of lubricant that will be used, is a study of the system utilized to get the lubricant to the bearings. It is always best to check the fittings and the line carrying the grease from the fittings to the bearing. When greasing, keep in mind that the only time a bearing is purged of dirt and grime is when excess grease runs through it. A little grease forced out of the seal usually reveals traces of contaminants, and this excess grease is well used.

All too often the job of lubricating the machine falls to the lowest man in the maintenance crew, or to one judged by supervision to be unsuitable for other tasks. Actually, the man could be much more effective if properly trained and instructed. Occasionally, a pneumatic clutch has been greased in error, while a bearing close by failed due to lack of lubrication. A chart, prepared by the plant engineer and prominently displayed for use by the maintenance crew, showing each grease fitting, type of lubricant, and frequency (you can overgrease) would help to prevent such failures. Often though, the fate of a $250,000 machine is in the hands of an unqualified "grease gun engineer."

Another worthwhile project for any maintenance crew is the grouping or clustering of many grease fittings to lubricate several out-of-the-way places at one time. Some machinery builders include these features, and more should.



Rewind shaft bearing bracket showing the inserts. Amount of lateral movement of shaft while locked up in brackets should be checked monthly.

All bearings are subject to some wear throughout their life. This wear can be taken up by means of shims, spacers, or other adjustment devices. A check on these should be made at least once a year and need not wait for a mill shutdown.

Belt Drives

Many machines have been equipped with variable pitch sheaves between the rewind drums to not only vary the speed relationship between the drums, but also to modify this relationship for different materials. These vari-pitch sheaves may be adjusted either when the sheave is stationary or by means of a handwheel arrangement while the machine is running. These should be checked periodically and kept clean and lubricated. A check should be made on the adjustable pitch sheave whenever there is a belt change on the winder.

More and more with higher speed machines, control of the rider roll or pressure roll gains importance, particularly the torque control. This is often accomplished through a clutch arrangement between the drive and the rider roll. Many of these clutches are pneumatically actuated, although some may be mechanically adjusted disk type. A clutch, by virtue of design, is a continuously slipping device and imposes wear on the plates or drums to accomplish this; therefore, it is expected that these wearing elements should be replaced occasionally. Inspection of the clutch should be a visual check on the wearing elements, measurement of the clearance between the friction surfaces to conform to manufacturer's recommendations, or some measure of the friction elements which should be replaced when they approach the minimum dimension. These control devices should be inspected at least once a month.

The use of any clutch or vari-pitch sheave, although always referred to as speed control devices, actually are torque control devices. In establishing any control of the density of the roll of paper, variations in torque of the input drives are the governing factors. Therefore, it is imperative that these elements are maintained in proper working order.

Another torque transmitting device on a winder is the belt drive from the motor to the winding drum, and many types are currently in use, such as V-belts, poly-V-belts, timing belts, Cog belts, and the like; each with distinct advantages and disadvantages. Properly applied, any of these drives should give years of excellent service.

Any belt drive is sized for two things, torque transmission and type of service. The first item, torque transmission, dictates the size, number, or type of belt used and takes into consideration the kind of service. Continuous operation at one speed is easiest on a belt drive, while constantly fluctuating or changing speeds are harder on the belting. Applications dictating the need for rapid accelerations and decelerations, as well as reversing operations call for heavier belting or possibly a complete new type or design. Several belt changes, after only a few weeks of operation, might indicate improper application.

Environmental conditions, if out of the ordinary, soon begin to deteriorate the belts. A thorough inspection of the belts at least once a month is in order. This should consist of a good visual inspection of all belts and pulleys.*

Hydraulic Components

Present machinery designs rely less on manual actuation and more on pneumatic or hydraulic components. At the touch of a button or the movement of a lever, force many times as powerful as a man makes machine adjustments. It is true that these hydraulic and pneumatic devices require more attention from the

* The maintenance of V-belts is the subject of a separate article in this series, published in the May 30, 1960, issue, page 30.

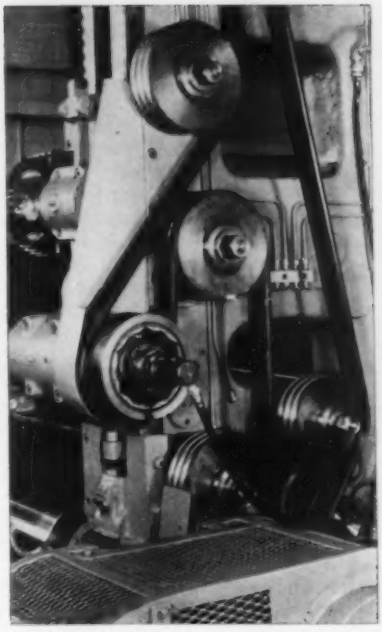
maintenance department, but the added flexibility of control more than offsets this possible disadvantage. From a maintenance standpoint, the only serious problem with hydraulically actuated machine elements is oil leakage. In almost every instance this is due to improper installation of fittings, valves, cylinders, etc. After these have been corrected on initial installation, the matter is seldom a maintenance problem again.

When tracing a hydraulic leak, always begin at the uppermost section of the hydraulic lines. Hydraulic fluid has a tendency to run along the lines, and some times it runs off at a fitting much lower on the machine, giving an appearance of a leak at that joint. Many inexperienced maintenance men will continue to tighten a fitting until the threads are stripped and will not stop the leak. When replacing fittings make sure they are assembled properly and square with the mating fitting. Also make sure the flanges are clean before assembly, since these flanges are a metal-to-metal contact and will make either a perfect bond or a possible leak.

Occasionally some valves must be removed for cleaning in a hydraulic system. These valves contain "O" rings and other synthetic parts for which "package kits" are available containing replacement synthetic elements. If the valve is taken apart, always replace the synthetic elements with new ones from these kits. The valve manufacturer or machinery builder can supply these kits, and they should not be overstocked, since they have a fixed shelf life which, if exceeded, will result in deterioration of the synthetic.

In cases where hydraulic cylinders have started leaking after many hours of service, and, after replacing the packing this difficulty is only eliminated temporarily, it is best to check the alignment resulting in the piston operating not in line with the center of the cylinder. An effective solution has been to check the cylinder for absolute alignment, however, a more practical solution is to modify the mounting of the cylinder. Often, the cylinder is fastened to the machinery at two points, and it has been found that the employment of a self-aligning piston on one end provides the proper mounting, yet allows the cylinder some degree of freedom to correct for minor misalignments.

The hydraulic pump unit consists of the pump motor and a hydraulic tank or reservoir. These tanks are always equipped with suitable vents allowing dissipation of possible back pressure, and under normal conditions these vents should be inspected and cleaned at least once every six months.



Four distant grease joints brought down to a common header. Maintenance can be simplified by clustering grease fittings to lubricate several out-of-the-way places at one time.

Filters

Often the vents are in the form of a cap with suitable filter material preventing dust and other contaminants from entering the tank through the vent line. It is only natural to suppose that these filters can eventually clog preventing them from performing their primary function of venting the tank. These caps should also be cleaned at least once every six months under normal conditions. Cleaning consists of washing the filter in a solvent, then blowing it out with compressed air. Blow the air from the inside out (a reverse flush) to loosen the dirt and residue. In the oil tank itself, you will usually find a submerged filter on the outlet line to prevent the unfiltered hydraulic oil from coming into the system and causing damage. There are two types of filters in common use, the metal screen type, and the replaceable element type. Both work equally well, and their success depends on proper application. The one draw-back is that these filters are not easily inspected, unless the tank is drained. The filter's condition, however, affects the proper operation of the pump unit. One outstanding symptom of a clogged filter or an impediment in the line on the intake side is an extremely noisy running pump. If this noisy pump is ignored for long, and the intake is further restricted, pump cavitation and eventual pump failure will result.

How often should these filters be cleaned and inspected? How often should the hydraulic tank and system itself be drained? It depends upon usage, of course. Part of the need for draining is to replace the oil containing contaminants with clean oil. The filter, especially the fine mesh type, does remove some contaminants from the system, and as a result of this removal accumulates sludge on the filtering elements restricting flow.

At least once a year the entire hydraulic system should be drained, and the filter and breather or venting system should be cleaned, inspected and replaced if necessary. If the system contains a replaceable filter element, it should be mandatory to change it during inspection. Along with this draining, a suitable flushing agent should be introduced to the system which will give it a chance to return to its initial condition. After a complete flushing operation the system should be refilled with new hydraulic fluid.

Before beginning this entire operation, acquaint yourself with the technical representative of the oil company that is favored with your business. Let him see your installation, ask for his recommendations, and follow his advice. Another note of caution is to watch the addition of hydraulic oil between system cleaning and inspection. Don't mix brands of hydraulic oil! It has been found that various additives in different brands of oil will not always mix properly so that you should stick to one brand, at least until the entire system is drained.

From a maintenance standpoint the internal components of a pneumatic system differ little from a hydraulic system. The filter is still the key to good, clean, trouble-free operation. The filter assembly also removes moisture from the air entering the system which could corrode or damage the internal elements.

The pressure regulator on a pneumatic system serves a very important function. Air equipment usually operates at much lower pressure and, if an air cylinder is to do the same work as a hydraulic cylinder, its overall dimensions must be much greater. If the air pressure is allowed to increase above the design limit, either by adjustment or by ac-

cident, damage to some element will surely occur. It is recommended that continual checks be made of the pressure, and such pressure must be restored to its design limit, if exceeded.

Electrical Equipment

This is one area in which only a qualified man should be assigned to adjust and inspect the machinery. Electric motors, controls, and motor generator sets are precise and complex components to be handled only by trained personnel. The big cause of failure of electric motors can be listed under five headings:

Dust and Dirt—Dust on commutators of d-c motors and on slip rings of wound rotor motors acts as an abrasive and increases wear and will also cause failure in bearings. It is an insulator and thus limits the free passage of current. It restricts heat dissipation and raises the operating temperature of motors. In the open spaces in the windings, dust reduces ventilation and cooling, may cause temperatures to rise to dangerous levels.

Excess Oil—The right amounts of oil in the right places represent an essential factor in electric motor operation. Too much combines with dust, plugs up ventilating openings. On the commutator, excess oil mixes with dust to prevent good commutation, glazes brushes, packs them with dirt and causes harmful sparking. On motor windings, too much oil breaks down insulation, shortening motor life.

Moisture—In a motor, moisture causes insulation to deteriorate and destroys the insulation value of the windings. Steam or vapor will do the same, unless the motor has special moisture-resistant insulation. Where splashing water or liquids are part of a motor's environment, special splash-proof enclosures should be provided.

Overload—Motors are designed to carry certain maximum loads. Failure of some parts of the driven machine, such as bearings, for example, may cause overloading. It may also be caused by trying to obtain greater output than the name plate rating of the motor. When a motor carries more than the current rating, it overheats. For every ten degrees above the rated temperature rise, the motor's insulation life is cut by 50 per cent.

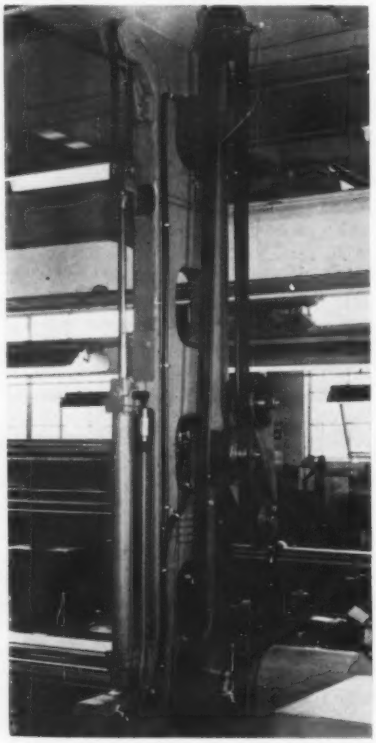
Misalignment and Vibration—Misalignment of motors may cause sprung or broken shafts, burned-out bearings, and failure from overload. Loose motor mounting bolts often result in excessive motor vibration which can shake loose electrical connectors and crystallize and weaken metal parts.

Not only the electric drive, but also the push button controls, relays, and solenoids bear checking for proper operation. Many of these are located in the control console. When these elements fail, they are troublesome to trace, and constant usage under poor operating environment is the chief cause of trouble in a console located close to the machine.

Often, to avoid a costly shutdown, a quick repair job will mean bypassing a safety interlock. It would probably be a commendable action on the part of the maintenance crew, however, to restore the circuit as soon as possible. If not, when the safety interlock is needed, it would not be operable, resulting in possible injury to operating or maintenance personnel.

Unwind Stands

The unwind stands may be of several types, the shaft type, the stand holding the reel, the vertical reel design, and the shaftless design. Each design has its application, whether off the paper machine, or for salvage or finishing operations. The design using an unwind shaft is the more prevalent, although the shaftless stand is coming into use more and more behind rewinders.



Belt drive to rider roll. The clutch arrangement between the drive and rider roll should be inspected once a month.

Some shaft type stands retain the shaft journals in sleeve bearings which are subject to replacement, due to wear. These bearings should last quite a while under normal operation, however, excessive speeds and mill roll weights will deteriorate them much sooner. As the mill roll reduces in diameter, the shaft increases in speed until this speed is reflected in shaft whipping. Unlike a rewind shaft, the mill roll shaft whip is in the center causing the bearings to wear excessively. If too much whipping action occurs, a permanent set will take place in the shaft.

A solution to the problem is to limit the run-out speed of the mill roll. This can be done manually by the operator or electrically through the drive. A speed limit circuit, connected through the brake, prevents excessive rotating speed by slowing the drive down before the mill roll runs out. A good operator can accomplish the same purpose.

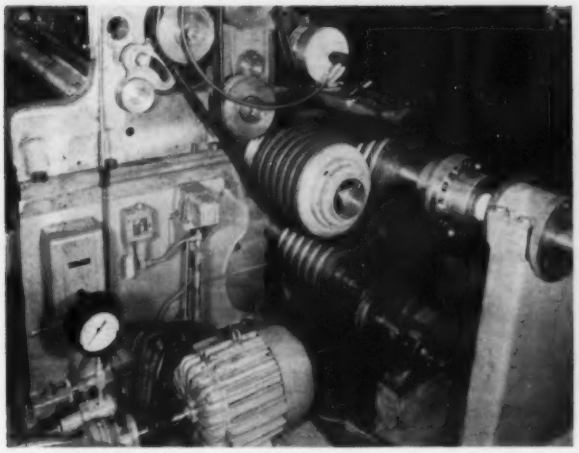
In some stands, the braking system is connected to the reel spool through a coupling arrangement. Due to constant usage there can develop some lateral end play in these mating sections. If allowed to continue unchecked, this lateral motion will allow the reel spool to shift sidewise in position during the unwind, affecting the side trim on the winder, and possibly the quality of the rewound roll. Any travel over .010 inch is excessive and should be corrected.

The shaftless stand, in addition to many operating advantages, does eliminate the shaft problem on the mill roll. It is not recommended that the end of the roll be run out at high speed. The paper core on the mill roll on a shaftless stand could buckle or tend to move away from the stand cones. Good stand design limits the after-effects of this core movement.

Unwind Stand Braking

The braking or hold-back tension is usually accomplished through a friction or electric brake, although hydraulic braking might have application here. The brake itself most likely is connected through a common shaft to the mill roll center core, reel spools, or shaft. Friction brakes can be mechanically or pneumatically actuated and are either air-cooled or water-cooled.

Like the clutch, the unwind stand brake is a constantly slipping device turning hold-back tension into friction, reflected as heat. The combina-



Belt drive between rewind drums. The vari-pitch sheaves should be checked periodically, kept cleaned and lubricated to maintain these torque control devices in working order.

Coupling for reel spools on backstand. Overloading of the brakes causes not only excessive lining wear, but also metal fractures around the stationary elements.

tion of friction and heat wear the braking surface. Repeated monthly inspection of braking surfaces (like the clutch) to check for wear, surface condition or dimensions is a necessity. Prolonged use of the brake without lining replacement will allow metal to metal contact with the necessity of having to remachine the brake surface at a later date. This is often a costly and time-consuming job.

Care must be taken in choice of lining for replacement. There are many varieties of brake linings, each with a specific application in mind. Although it might sound like a bargain, poor or improper lining can cause rapid replacement or mechanical brake lock, a destructive failure. The manufacturer should be contacted regarding brake replacement.

Brakes and lining are both subject to destructive forces, due to excessive rotating speeds and every brake has a rotating speed limit. Not only will mechanical failure occur, but also excessive brake lining velocity may result in heat beyond the thermal limit of the materials. Overheating of the brakes cannot only cause excessive lining wear, it can also cause metal fracture around the stationary braking elements. On air-cooled brakes this would indicate the brake's capacity has been reached. This is one reason why water cooling of brakes is becoming more popular, especially when thermostats are used in the cooling lines. In areas where water is in short supply, heat exchangers have been utilized to continually re-use the water.

One common problem with a water system is that the operator forgets to turn the water valve on. At high speeds, with no cooling, the brake will get hot very quickly. The thermostat should be checked by the maintenance personnel occasionally to make sure of proper operation.

One word here about electric brake systems, especially the d.c. type, tied in with a d.c. drive on the winder. This system is called a regenerative braking arrangement* by using a d.c. generator as the unwind brake on the backstand, during the unwind operation current is pumped back into the system and helps to power the winder, thereby reducing the size of the motor generator set on the power unit. Also, during periods of rapid acceleration, the generator acts like a d.c. motor and drives the mill roll up to speed.

Spare Parts & Service

The field service representative or a machinery erector, who assists in the installation of the machinery, is generally a man acquainted with basic operating problems. All too often, however, he is not allowed to remain on the job long enough to instruct the operator in the proper use and the proper application of the various control devices. These service men see many plants in their working life and are well acquainted with materials and the proper application of equipment to the slitting and rewinding of these materials. It would do well for plant management to remember this fact and to take full advantage of the opportunity of discussing the problems with these service men, while they are available in the plant.

One of the best approaches to setting up a routine maintenance program is to have available a ready supply of spare parts. This does not mean an overstock, rather a judicious usage of manufacturer's recommendations of replaceable items plus other components, as shown by experience to present problems after many months of service. Many manufacturers offer a spare parts list for the customer's consideration, together with prices, as well as parts catalogs, lubricating instructions, and service bulletins issued from time to time.

Although the ultimate would be a complete spare machine in the backroom, this does not make for practical operation. By keeping a log of repairs of the machine over a period of time, maintenance personnel will soon have a basis for judging the operating life of the replaceable elements. It is always best to have on hand at least one set of belts for every set on the machine. Other items, such as bearings, can be ordered based on past experience and tempered by manufacturer's recommendations.

Experience, of course, is the best teacher, but on maintenance work the fees are exceptionally high. In any preventive maintenance program, familiarity with the equipment is a must and, when coupled with the realization that problems occur, is a step toward a workable program. A realistic stock of replacement parts provides a basis for such program. This stock must be continuously utilized and constantly replenished to do the organization any good. This then will be a step toward keeping the winders running and turning out good, high quality rolls.

* This is not to be confused with regenerative braking on the d-c drive which, although it employs the same principle, carries out braking of the drive motor only and is less abrupt than dynamic braking.

Refining Said Key to High Yield Kraft

The significance of high yield kraft pulping to our industry was emphasized by the attendance and interest of mill men gathered to hear a panel comprised of men with experience in that field discuss the subject at TAPPI's 14th Alkaline Pulping Conference. PAPER TRADE JOURNAL reports here in question and answer form some of the topics that were brought up for discussion. Panel members are listed below photo.

Panel members (l. to r.): Moderator Eric S. Rice and Lloyd F. Goodwin, St. Regis Paper Co.; Franklin L. Jones, Container Corp. of America; John Henderson, Crown Zellerbach; Bruce P. Ellen, Continental Can Co.; John S. Hart, St. Lawrence Corp.

Q. Which method, chlorine or permanganate number, does the panel feel is most reliable to control the pulping process?

A. (1st panel member) We have used both, and I believe we have come to the conclusion that chlorine number seems to be more reliable.

(2nd panel member) We haven't had the luck with chlorine number that some of the others seem to have had. We still prefer permangate number as far as we are concerned at the moment.

Q. What would you consider is a reliable method to arrive at what the yield is in a mill?

A. Of course the most reliable method would be to weigh the wood and weigh your pulp. However, not everybody can do that. We aren't able to do it! We have no method of weighing the wood that is charged to the digesters. We actually go more by wood usage than we do by yield, so to speak. Our wood consumption is on the order of 1.41 units per ton of board as shipped off the end of the machine.

Q. What does the panel think is the most reliable high yield figure being quoted in the industry? You hear all sorts of yields, as high as 60 per cent, sometimes a little higher.

A. (1st panel member) I would say on the order of 54-55 per cent.

(2nd panel member) Actually, at one time, we were up in the range of 60-62 per cent on the base stock. We use a softer stock on our top sheet than we do on our base. I would say we average around 60 per cent on our base stock.

Q. What are some of the densities of wood used here on the West Coast?

A. Generally we talk in terms of about 24-25 lbs. of dry weight per cubic foot of green volume.

Q. Does the soda loss decrease with less chemical use in digester?

A. (1st panel member) That has been somewhat our experience; however, there have been other factors contributing to the drop-off. We have gone to high yield in the amount of 54-55 per cent due to the medium of shredding the chips. We have found that our losses off the washers have decreased since we started this procedure.

A. (2nd panel member) It depends we feel on what you do ahead of the washers and how you do it. We use Claflins directly ahead of our washers and we have found that we can and do wash down regularly to around 30 pounds soda loss off our last stage washer, which is not too bad. We of course do our refining after washing.

Q. How about the effect of screening on high yield pulp?

A. High yield pulp is a very difficult material to screen effectively. We in our plant, have No. 5 Impco centrifugal screens and also we have the new A44 Impco screen, somewhat comparable to a Cowan. We are able to put through a No. 5 on the order of 135-140 tons a day; through an A44 we can put on the order of 175 tons. Now some of the mills on low yield are putting through about 4-5 more tons than we are, but with the higher reject count we certainly have more of screening problem than you would with a lower yield.

Q. As far as I know there are 4 or 5 different types of refiners in use on high yield pulp. The experiences that we have had have been very interesting. I have felt for some time that there is still need for refiner plates to be developed for high yield pulps. Just how far they can go with that I don't know. Would anyone like to comment on refiners?

A. Frankly one of the keys to high yield pulping is in your refining. When we started out of course we started out with the idea of refining following the washers. Actually we started out with a pre-breaker ahead of our washers to break up fiber bundles and larger chips so we could get a fairly decent job of washing. Following the washers we have a high density chest and from the chest we pulled out directly to 36-2 Sprout Waldron refiners. It took us about two years from the time we started to actually get what we were really after which was a high burst pulp to the machine and at the same time refine the stuff without destroying it. We tried maybe 50 to 75 different combinations of plates.

We finally ended up with a plate that had very little or no breaking area as such. We ended up with a plate that had on the stationary portion a rather wide bar with a so-called dappled plate design and a fine bar type on the other. Actually this gave us what we were looking for and that is what we still are standardized with.

It was noted in further discussion that the high yield pulp gives a somewhat darker sheet than the normal or low yield pulp. At least one mill was installing a system for a soft top liner. As far as the physical characteristics are concerned they were said to be comparable to those obtained with low yield kraft. On the use of hardwood St. Regis at Jacksonville was using about 15 per cent in the mixture for base stock. Other mills were not using any.

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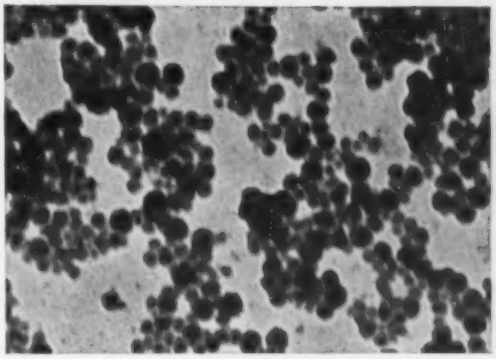

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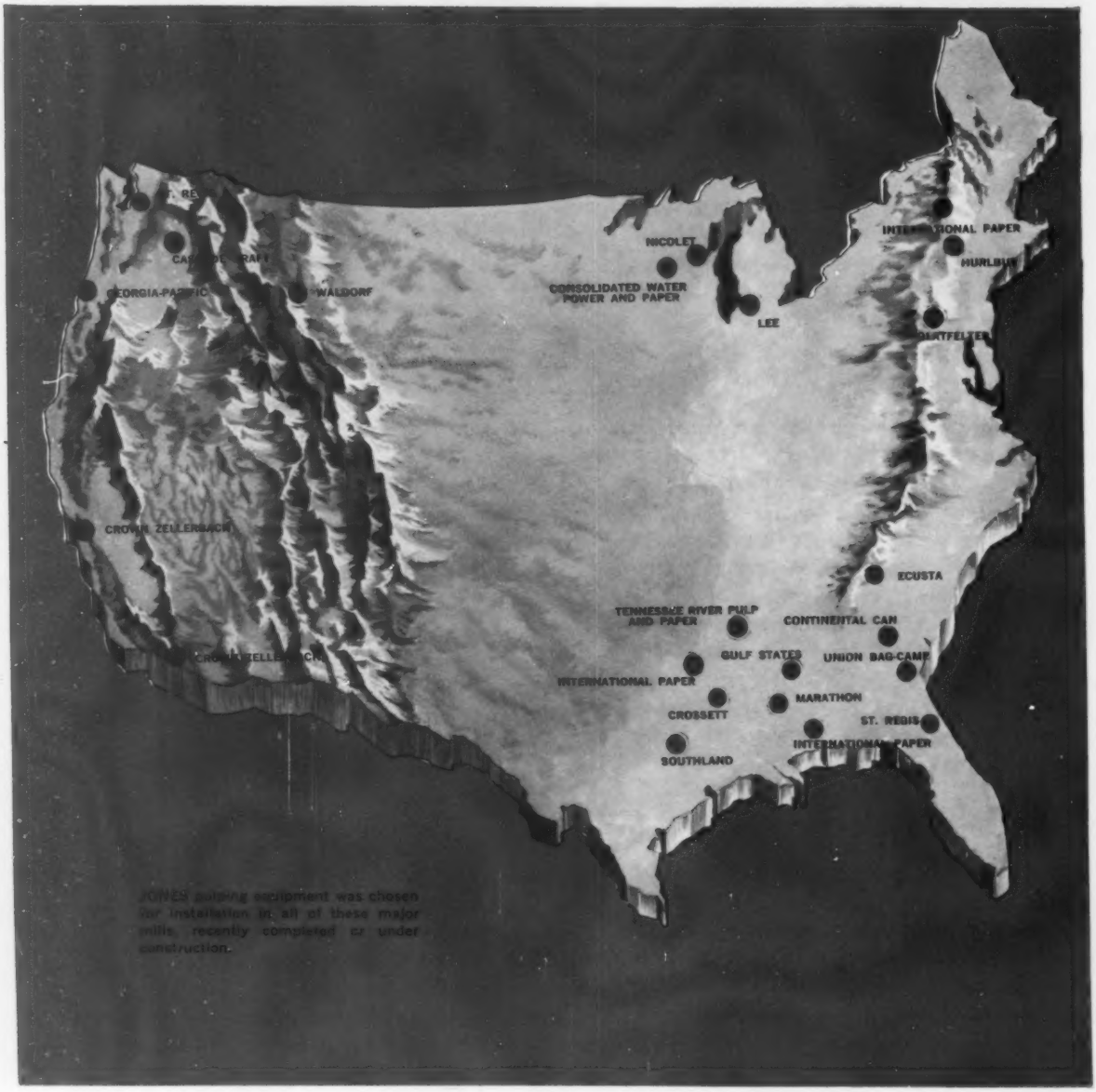

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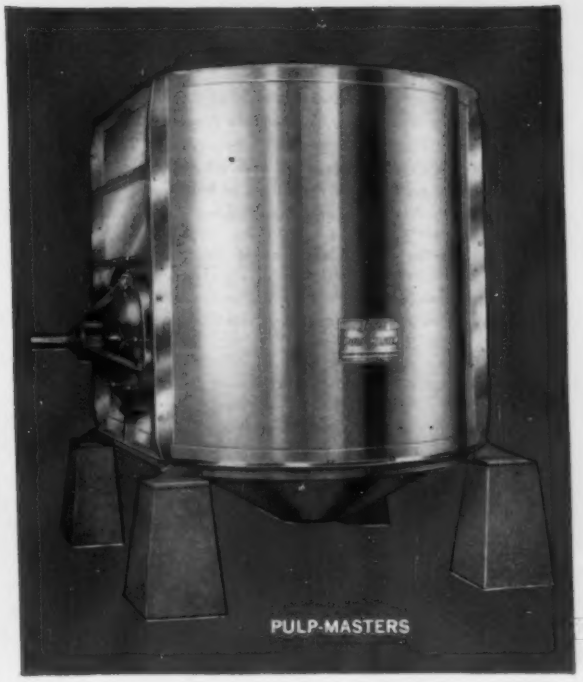

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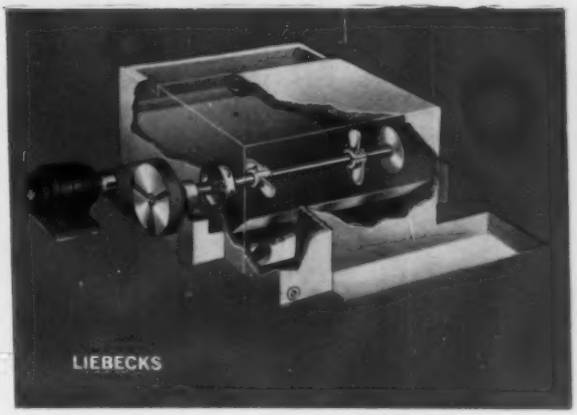

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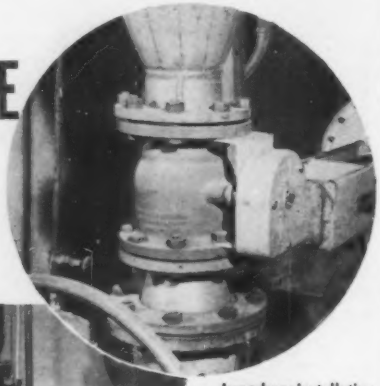
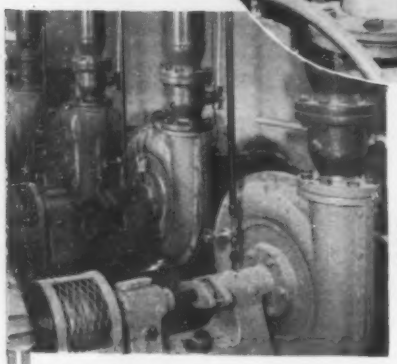


Jamesbury installation at Weyerhaeuser Longview Plant



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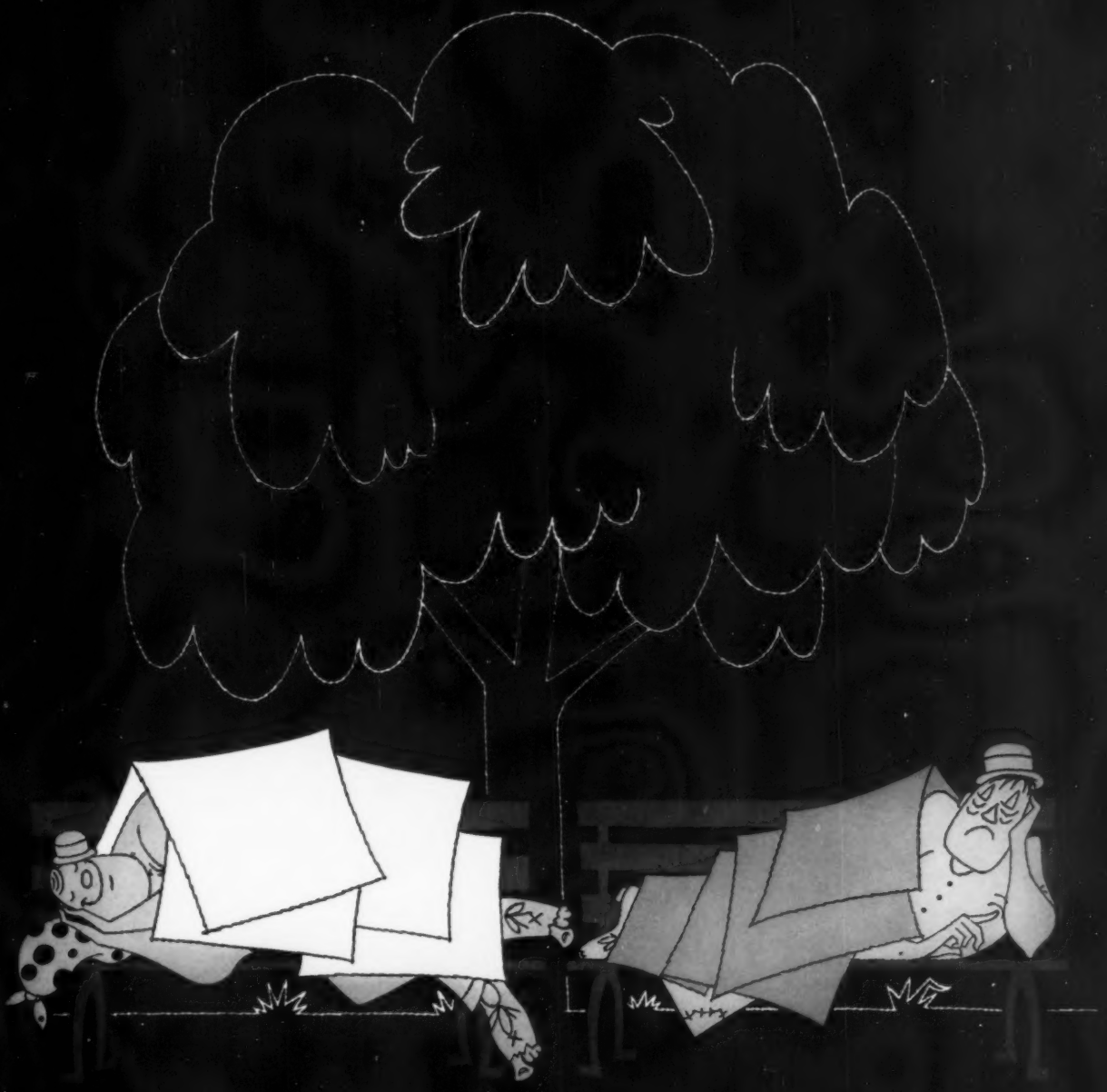

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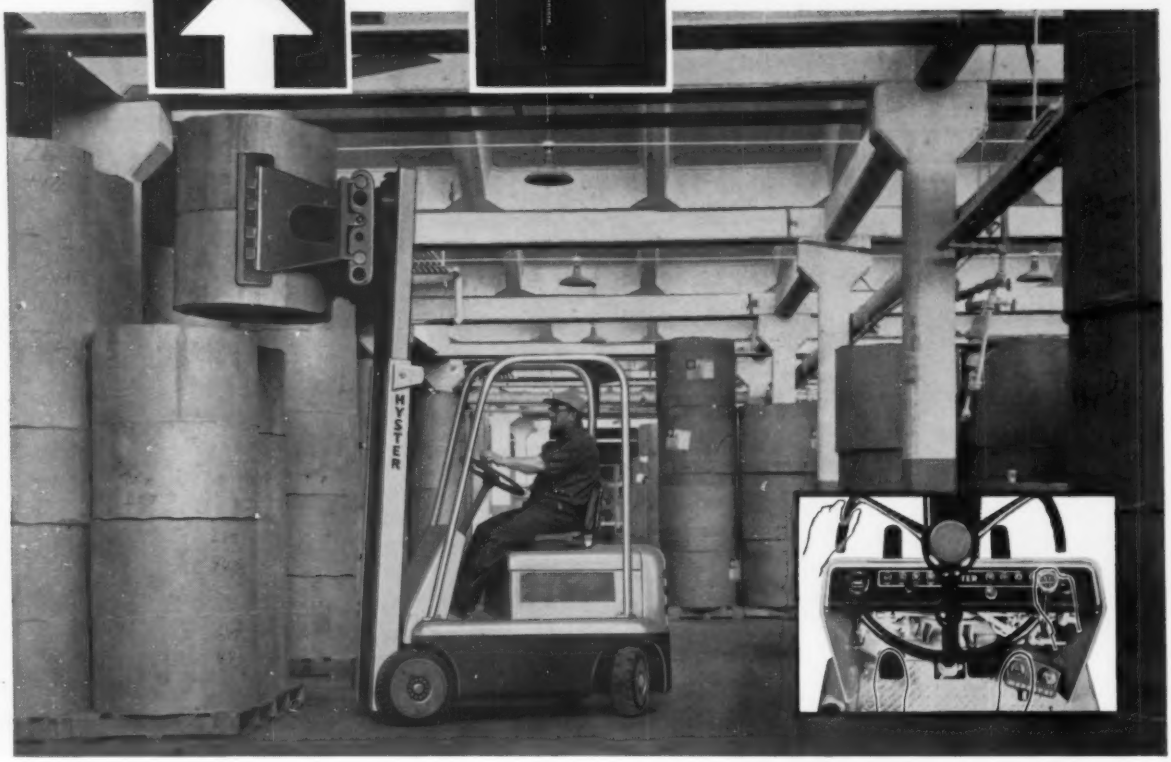

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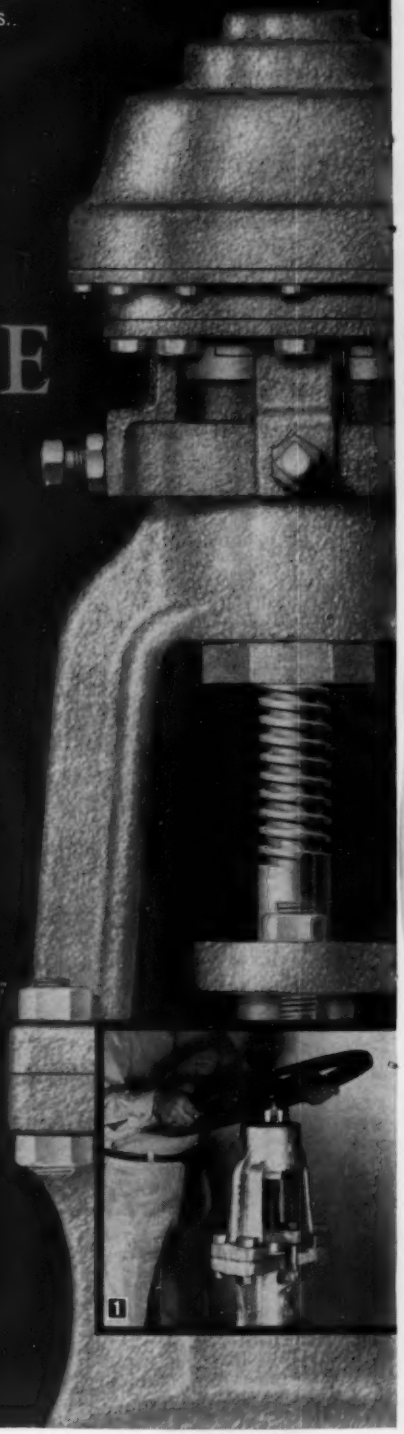
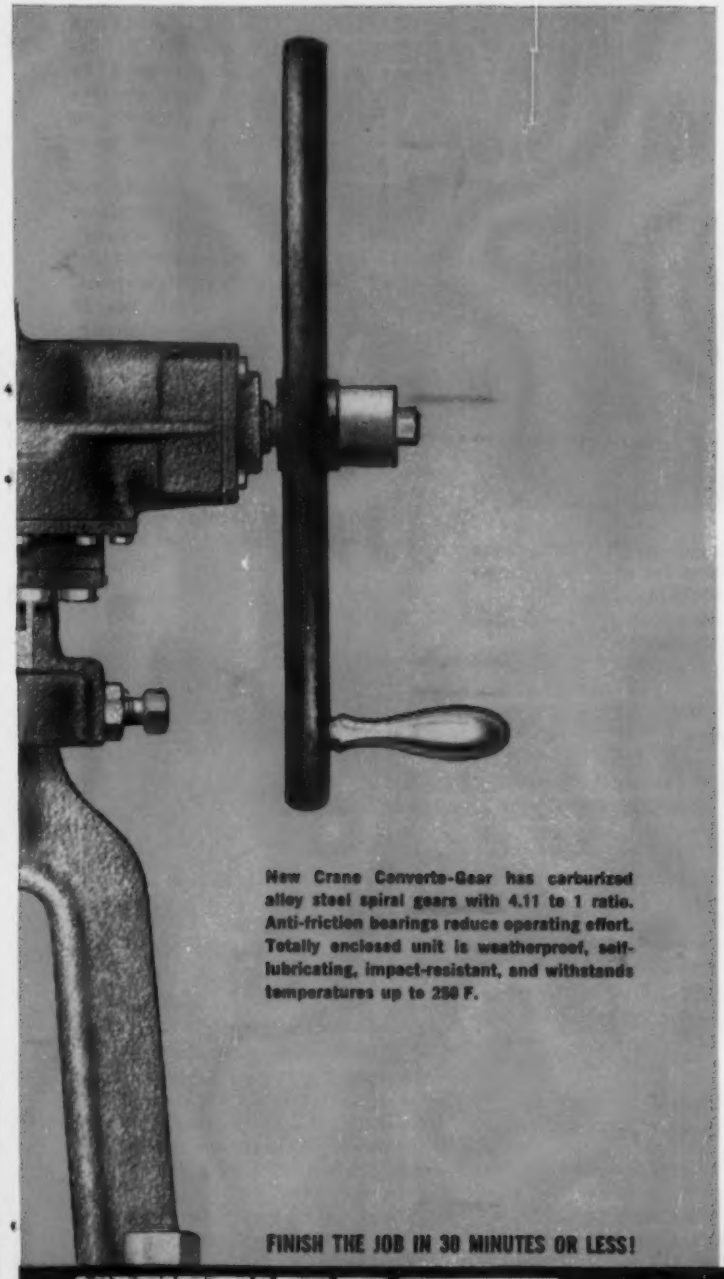
DIRECTION '70

. . . a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the competitive challenges of the Sixties.

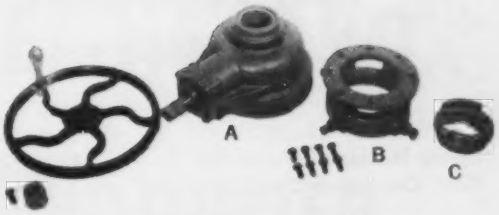
NEW! You can order this CRANE Converto-Gear Valve Operator from stock... install it in less than 30 minutes





New Crane Converto-Gear has carburized alloy steel spiral gears with 4.11 to 1 ratio. Anti-friction bearings reduce operating effort. Totally enclosed unit is weatherproof, self-lubricating, impact-resistant, and withstands temperatures up to 250 F.

FINISH THE JOB IN 30 MINUTES OR LESS!



Only three parts needed to convert your OS & Y valve to gear operation: (a) Crane Converto-Gear Operator, (b) adapter for mounting operator on valve, (c) yoke sleeve adapter. Handwheel and mounting bolts furnished with conversion kit.

Now you can convert to rapid, easy gear operation on many of your Crane iron and steel gate valves without removing them from the line! Changeover is simple and fast with Crane's new Converto-Gear Operator.

Your Crane Distributor can give you complete information on this brand-new idea in gear operators for gate valves. The Converto-Gear is standard and universal, readily mounted on Crane iron and steel gate valves in sizes from 6-inch to 36-inch, in outside screw and yoke or non-rising stem patterns.

And new orders for gear operated valves can be filled with unprecedented speed because the Converto-Gear can be supplied on valves right from stock. No special yoke castings or brackets are needed . . . just the basic gear operator and a simple two-piece adapter.

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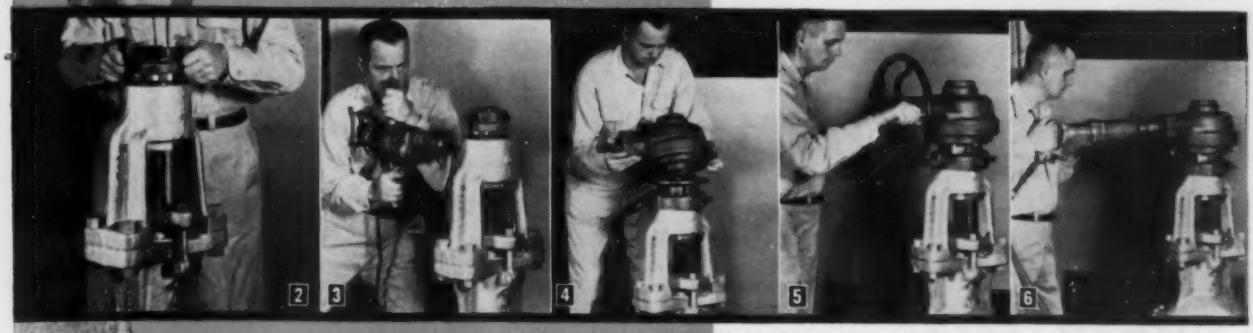
VALVES • ELECTRONIC CONTROLS • PIPING
PLUMBING • HEATING • AIR CONDITIONING
HEAT EXCHANGERS • CYCLOTHERM® BOILERS



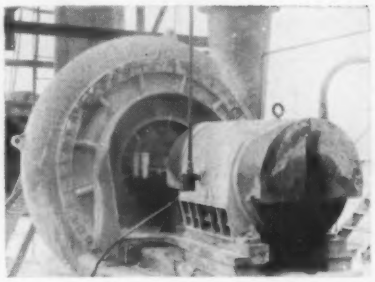
To convert your OS & Y valve, (1) remove the handwheel, (2) mount the yoke sleeve adapter, (3) countersink 4 holes for the Converto-Gear adapter, (4) bolt the adapter in place and attach your Crane Converto-Gear Operator, (5) and you're ready for smooth, manual operation, (6) or fast operation with an air or electric power operator.

PJT NEW EQUIPMENT & SUPPLIES

Epoxy Insulated Motor for Wet, Corrosive Conditions

Crocker-Wheeler Epa-Seal motors are not merely dipped, "potted", or "pasted" with Epoxy, instead windings are completely filled and coated by special vacuum-pressure impregnation methods, reports the manufacturer, Elliott Co. Stator and rqtor laminations are treated with a special anti-corrosive Epoxy coating. All hardware is protected by a corrosion-resistant treatment. Weatherproof conduit boxes are standard. Motors are adaptable to NEMA Type I weather protection.

Random-wound, epoxy encapsulated motors, Class B, 60 degree C rise, 1.15 service factor, for voltages to 600 volts, have run while completely submerged in water for more than 1000 hours, without failure, it was reported. Form-wound Epoxy impregnated motors of similar ratings



but for voltages to 4160 volts have been submerged for more than three months. Subsequents established that high insulation resistance and dielectric strength were maintained. In this model, core frames are dipped in Epoxy resin and baked before winding. Slot cells are Epoxy-glass. All connections are taped with Epoxy-mica and glass tape. Coil noses are tied to insulated support ring with treated glass cord. Photo shows an Elliott 350 h.p. Epoxy-insulated form-wound motor driving an Elliott compressor in a chemical plant. A corrosive atmosphere is supplemented by constant spray from an adjacent cooling tower, but motor has operated continuously with no risk of electrical failure. Further details are available from Elliott Co., Jeannette, Pa.

Meet Huyck's
CHURCHVILLE

Joseph J. Churchville is Superintendent of Huyck's Aliceville, Alabama plant — the world's largest modern felt mill. A graduate of Lowell Technological Institute, Joe received a broad manufacturing training at Huyck's Rensselaer, New York plant before his assignment in Aliceville. Drawing upon his sound experience in the manufacture of custom-engineered fabrics and his knowledge of paper mill requirements, he supervises a well-trained production team that assures all customers of top quality, felt after felt.

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Advertisement

Introduces Digital Controlled Drive Systems

In their special purpose digital controlled drive systems Reliance Electric and Engineering Co. offers accuracy, modular construction, built-in test equipment, and full system responsibility.

The principal advantage of a digital control system is its precise accuracy, says Reliance. When accuracy requirements are more exacting than 1/10 of 1 per cent, and where system component drift might cause a problem, digital techniques can provice no-drift accuracy.

Basically, a digital system operates with information in the form of precise increments, or pulses; i.e., a simple, but very exact, counting system. Digital systems may be programmed by cards, tapes or dials, can be built with "memories", and with the ability to calculate.

Available in NEMA 1 cabinets and enclosures, the equipment is described as being "all-environment" in application. The units will operate right on the plant floor; there's no need to keep the equipment in separate air-conditioned rooms.

The equipment is specifically designed for the individual application. Reliance does not offer "standard" digital equipment. Modular construction of the digital control systems, coupled with printed circuit boards and Sealpak (complete special-purpose electronic circuits embedded in a solid block of resilient plastic) construction provide long, trouble-free life, it is reported. Individual circuits are built into their own modules for easy check-out and replacement.

All Reliance digital controlled drive systems are provided with built-in

test equipment for fast system checks. No complicated test procedures are required. Readily accessible test fixtures allow easy check-out of circuits on the spot; plug-in modules allow simple, no-fuss replacement.

Reliance channel wiring is used throughout the systems, except in sensitive circuitry where direct wiring is required. Power and signal leads are carried in separate channels to insure interference-free operation. Flexible wiring, connected without sharp bends, prevents vibration damage while it materially lengthens equipment life.

Detects Metal in Web or Conveyor

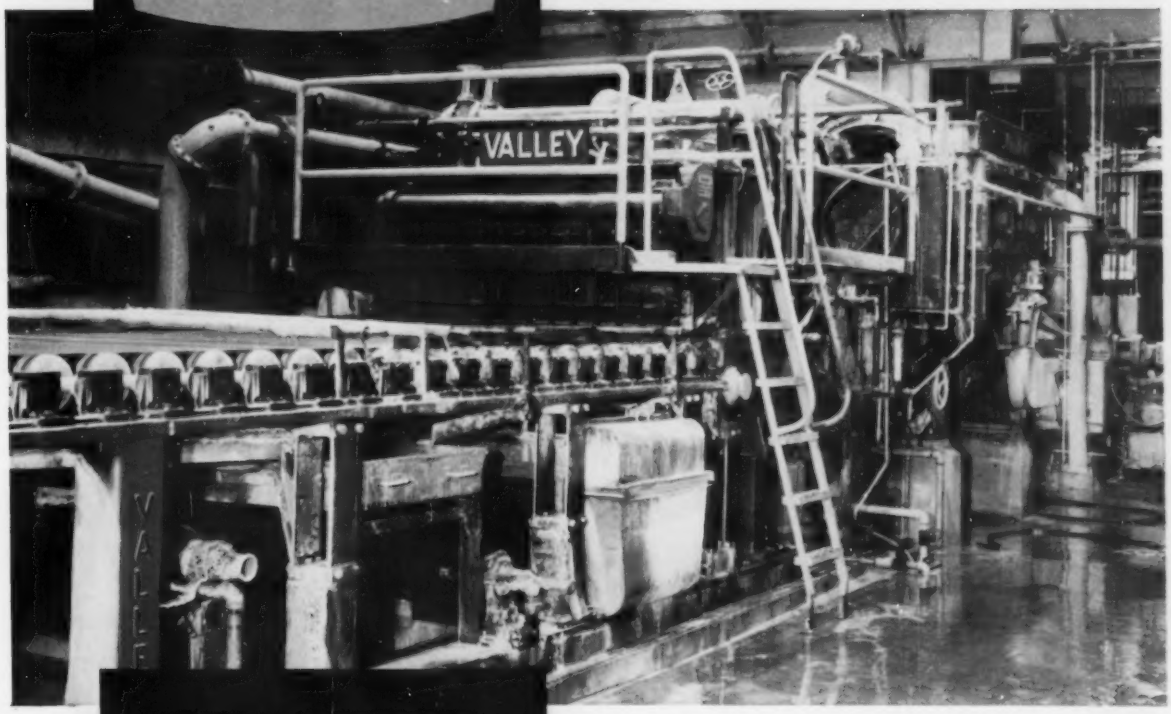
Now available from Electro-Mechanical Research, Inc., is a metal detector which features unusual stability, eliminating the need for frequent balancing.

The EMR Model 200A Metal Detector locates small ferrous or nonferrous tramp-metal particles in nonmetallic materials. It is particularly adapted to locating metal of any kind

NEW INLET-HEADBOX and FOURDRINIER SECTION at D. M. BARE PAPER COMPANY

by VALLEY

Division of Combined Locks Paper Company
at Roaring Springs, Pennsylvania



"START-UP AND OPERATION HAVE BEEN BEYOND EXPECTED PERFORMANCE", SAYS HAROLD VANDERHEI, VICE PRESIDENT & GENERAL MANAGER.

VALLEY IRON WORKS CORPORATION
SUBSIDIARY OF ALLIS-CHALMERS MANUFACTURING COMPANY
APPLETON, WISCONSIN
West Coast Representative: E. A. Berry, P.O. Box 958, Longview, Washington
Canadian Representative: Pulp and Paper Mill Association Ltd., P.O. Box 850, Station "O", Montreal 9, Quebec

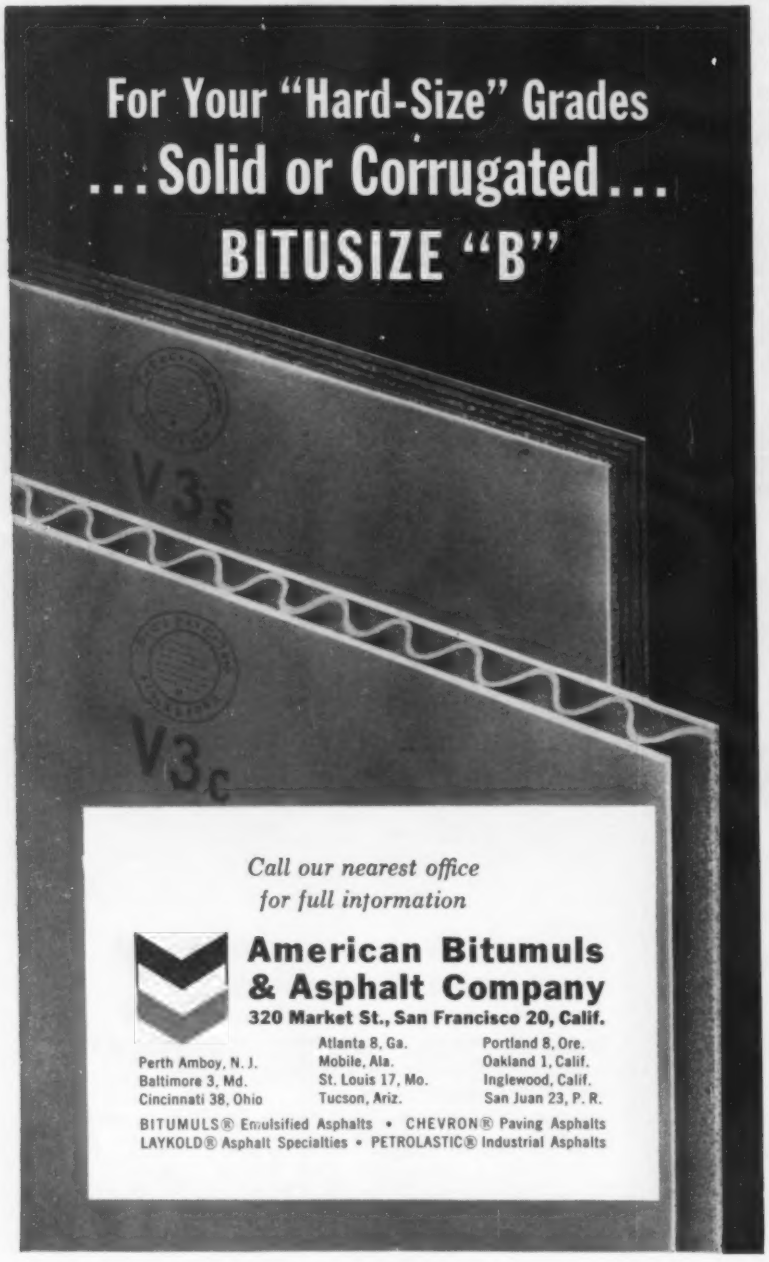
in products manufactured in continuous web or sheet form.

The Model 200A incorporates a patented feature that is said to permit reliable, stable, unattended operation even during changes in temperature, humidity, and barometric pressure and in the presence of smoke and noxious fumes. As presently constituted, the Model 200A is intended for use with conveyor belts as wide as approximately three feet. Other coil-system configurations are available upon request.

Ferrous particles whose smallest dimension is 0.063 inch and non-ferrous particles who smallest dimension is 0.085 inch can be detected at conveyor speeds between 1 and 100 feet per minute. A relay-controlled a.c. outlet can be used to stop the conveyor, sound an alarm, activate a rejector mechanism, etc.

The Model 200A consists of a dust-proof control box and a coil system that comprises a fixed head and a movable head. The coil system provides inspection apertures of up to eleven inches. The control box contains the electronics and provides for

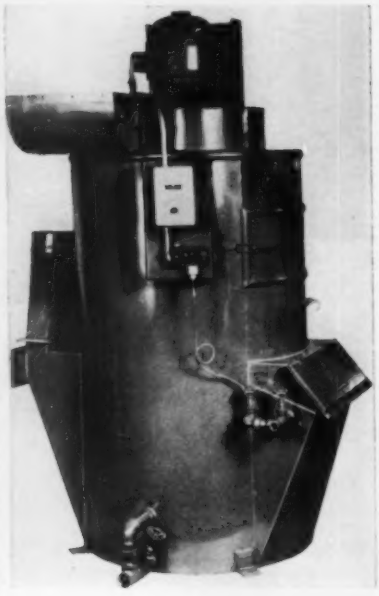
extremely simple preoperational adjustment to the specific application. Available from Electro-Mechanical Research, Inc., Sarasota, Fla.

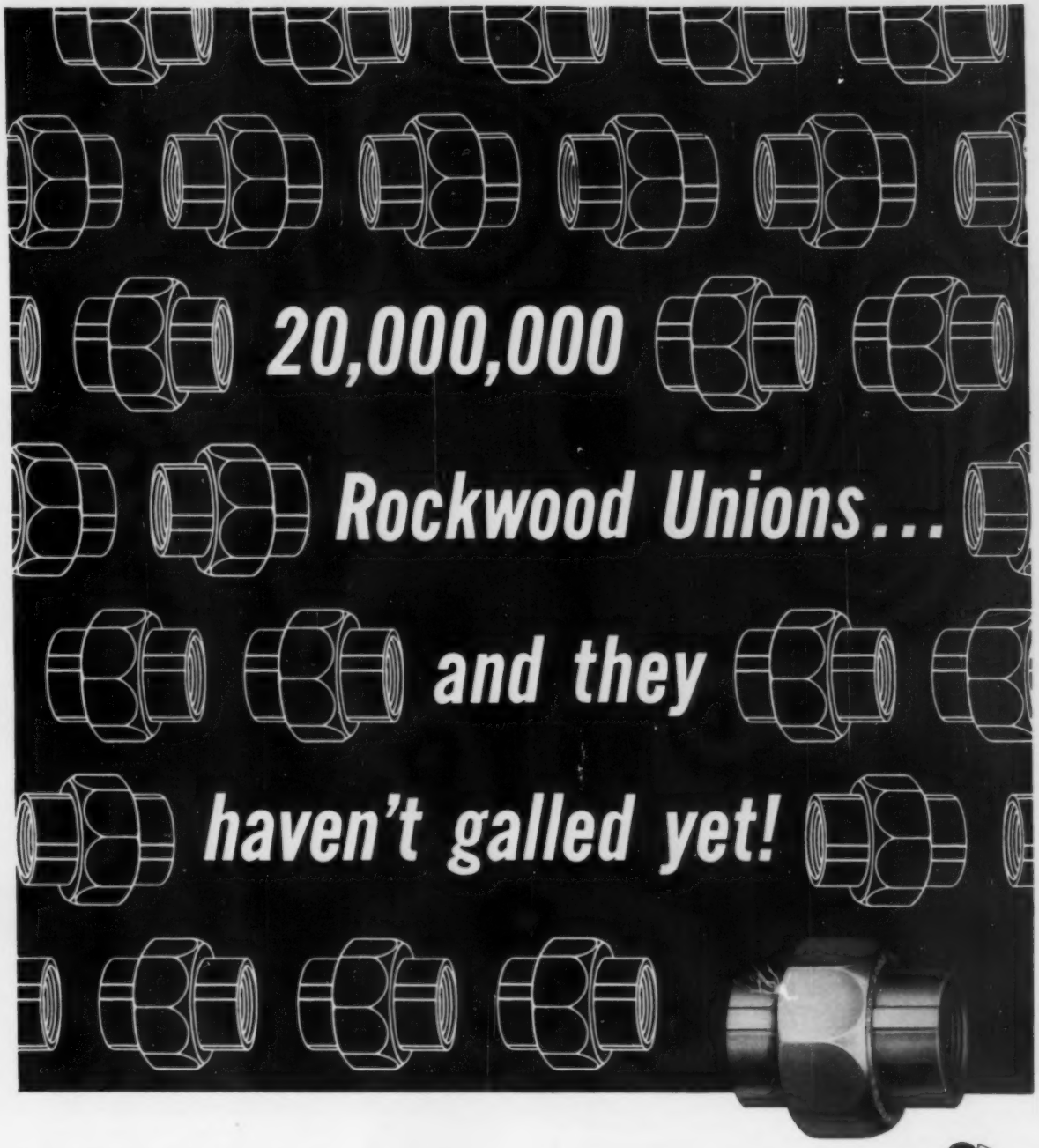


Dust Collector Has No Moving Parts

A wet type dust collector, with no moving parts and requiring minimum floor space, which provides maximum efficiency in cleaning air streams is announced by The DeVilbiss Co. A product of the company's Metal Fabricators Division, the Uni-Wash Dust Collector is make up of standard elements which can adapt to most installations, offering flexibility while retaining the cost advantages of standardization.

The Uni-Wash will remove, dirt, dust, grindings, chips, fumes and vapors. No pumps or agitators are used in the air-washing process. Instead it employs the principle of washing, scrubbing and fogging contaminants out of the air stream and depositing them as a wet sludge for manual or automatic removal. The design enables the collector to be offered at a low initial cost, assures





Only ROCKWOOD Cold Forged Steel Unions have the hardness differential which *assures* fast, easy make-up, a tight seal, and free from galling. Male seat is heat-treated to a hardness substantially higher than that of the female seat. Then both seats are forged in place and double-locked under 100,000 and 400,000-pound pressures. Other outstanding features include: special color-coding for immediate identification, Rockwoodizing which gives all surfaces *positive* protection against corrosion, interchangeable parts. Get complete information now. Write for facts.

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Please send me prices and further information on Rockwood Unions.

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Title .....
Company .....
City ..... *Zone* .....
State .....

Departmentized wrapping increases efficiency, brings new economies to Montag Bros, Inc.

Low initial cost and minimum maintenance led Montag, Bros., Inc., Atlanta, Georgia, to specify Hayssen for its packaging department expansion. The three Hayssen Machines, above, wrap the company's notebook fillers in polyethylene at speeds to 105 packages per minute. Six other machines wrap envelopes, stationery, ream stock, etc. Departmenting your wrapping operation is an effective way of gaining new production economies by allowing concurrent wrapping of all products. Discuss your wrapping problems with Hayssen. Call or write today.

When you specify Hayssen:

. . . you specify the only equipment that is backed by over two years of paper product wrapping with polyethylene, Mylar, Vitafilm, polypropylene, all modern films *are now being used on Hayssen equipment.* When considering wrapping machinery for your plant, insist on actual operational reports instead of test results achieved under laboratory-like conditions. Hayssen builds equipment that delivers results.

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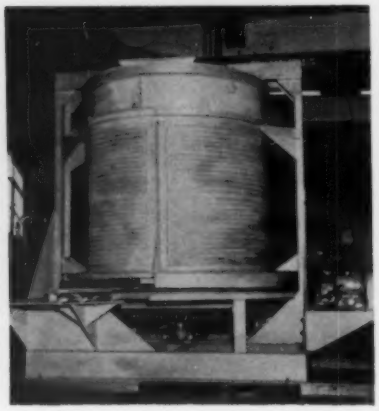
low operating costs and minimum maintenance, it is reported.

With several models available, most applications can be serviced by assembling standard elements. Custom units will be manufactured by the division for unusual requirements. Further information is available from the DeVilbiss Co., Toledo, Ohio.

Wrap-Around Coil Maintains Temperature in Bins, Tanks

To provide a suitable means of maintaining required temperature of material in an automatic feeder, the

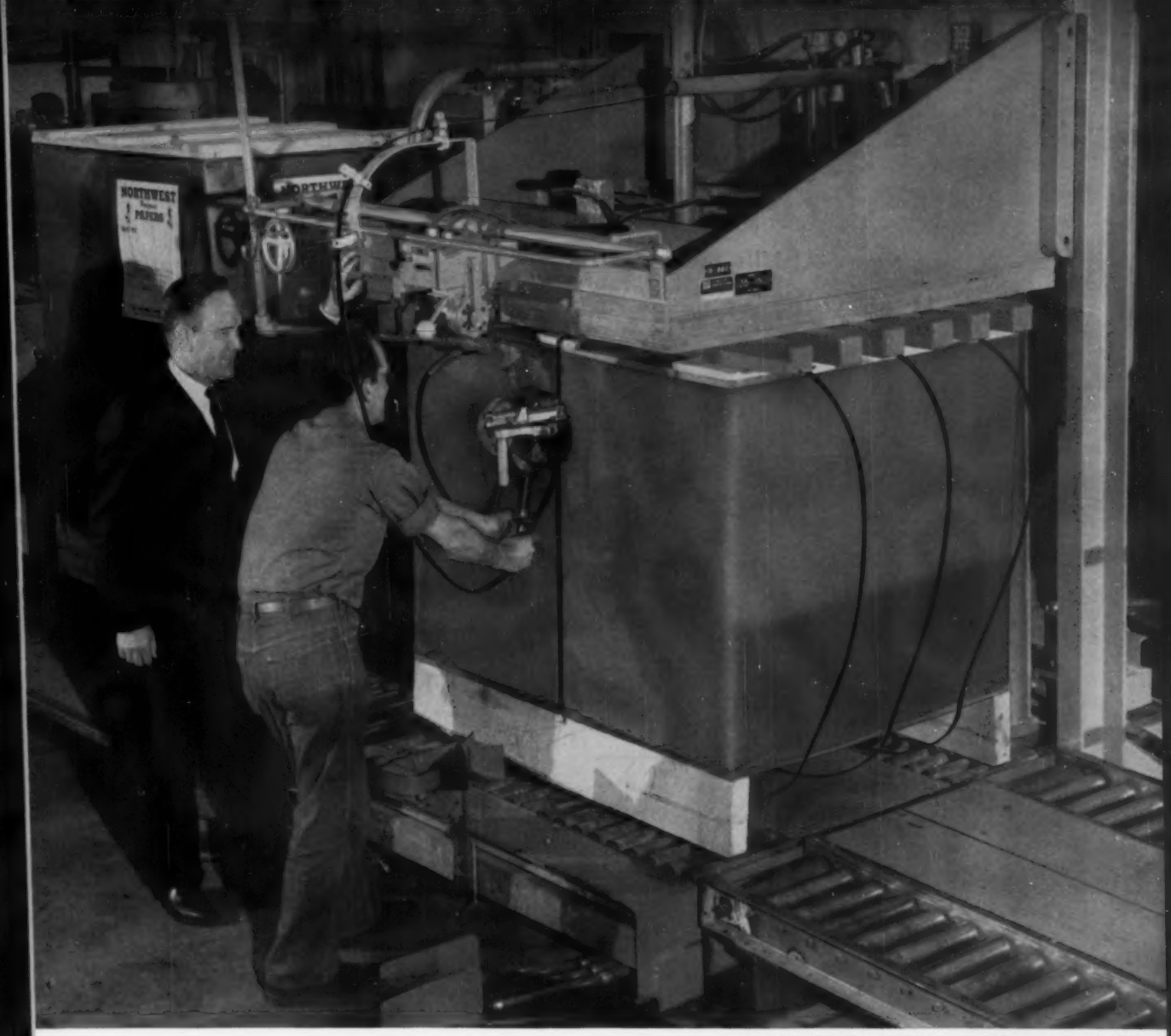


Pulva Corp., Perth Amboy, N. J., has applied a simple method of wrap-around heating. The panel jacket, which is stationary, is mounted 1 inch from the bin.

Steam circulating through the parallel embossed flow channels of the Panelcoil provides radiant heat to the bin's contents. The heating assembly consists of two semi-circular sections, hinged on one side and clamped together on the other. This permits ready disassembly, if necessary. The panels are made of 14 gage embossed steel, seam welded to a 12 gage backsheet. Inlet and outlet connections are provided for each half. With a channel cross-section of 0.31 sq. in. and the channels closely spaced to provide maximum flow of steam, heat transfer is quick, efficient and economical. After its installation, the Panelcoil is insulated.

Panelcoil is manufactured by Dean Products, Inc., 1048 Dean St., Brooklyn, N. Y., in single and double embossed types of specified metals in any shape for heating or cooling tanks and other equipment from the outside or for immersion heating inside the vessel. They may also be integrated in the equipment's shell as part of the sides, bottom or top.

WHAT'S SO "NEW" ABOUT COMPRESSION STRAPPING?



Acme Idea Man J. F. Kelly (left) views Idea No. S3-63, which he helped develop, at The Northwest Paper Company, Cloquet, Minn.

Perfecting methods to keep packaged paper tight and square, without bowing skid tops, has been a project of Acme Steel for years. And here's proof that it's paying off.

An Acme Steel Strapping Press and Fully-Powered A4 Steelstrapper have eliminated loosening of strapping due to trapped air leakage between stacked sheets. Result: perfect skids that *stay* secure and square.

If stack misalignment and creeping packaging costs are pinching *your* profits, put Acme Steel's *proved* experience to work. Call your local Acme Idea Man, or clip the coupon for full facts.

ACME STEEL

IDEA LEADER IN

STRAPPING

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Acme Steel Products Division
Dept. PSS-90
135th St. & Perry Ave.,
Chicago 27, Ill.

Please send me Idea No. S3-63 and example of how major companies in my field use Acme Steel Strapping.

*Name*_____

*Title*_____

*Firm*_____

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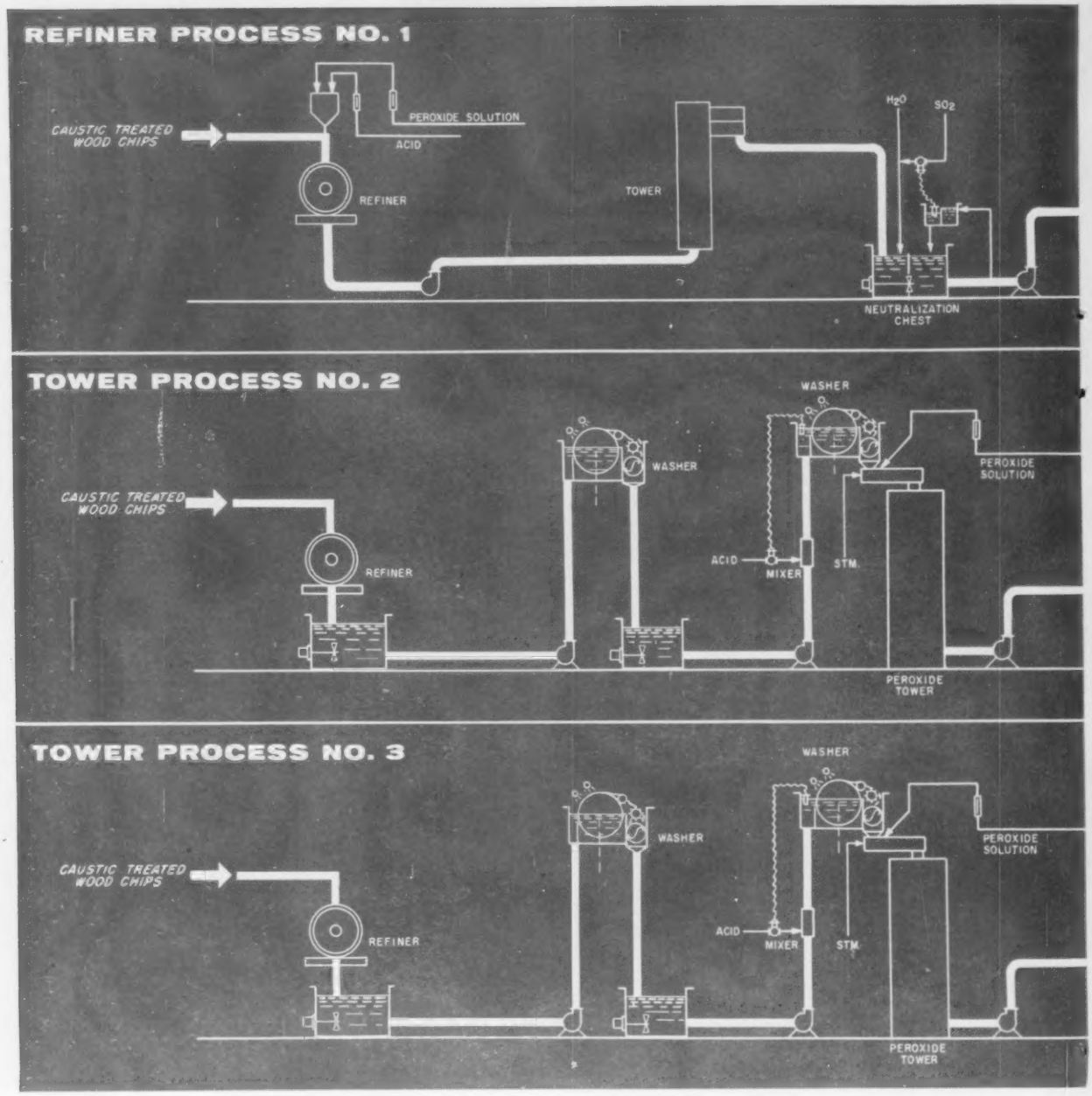

Which process is best for

experience can help you make the right

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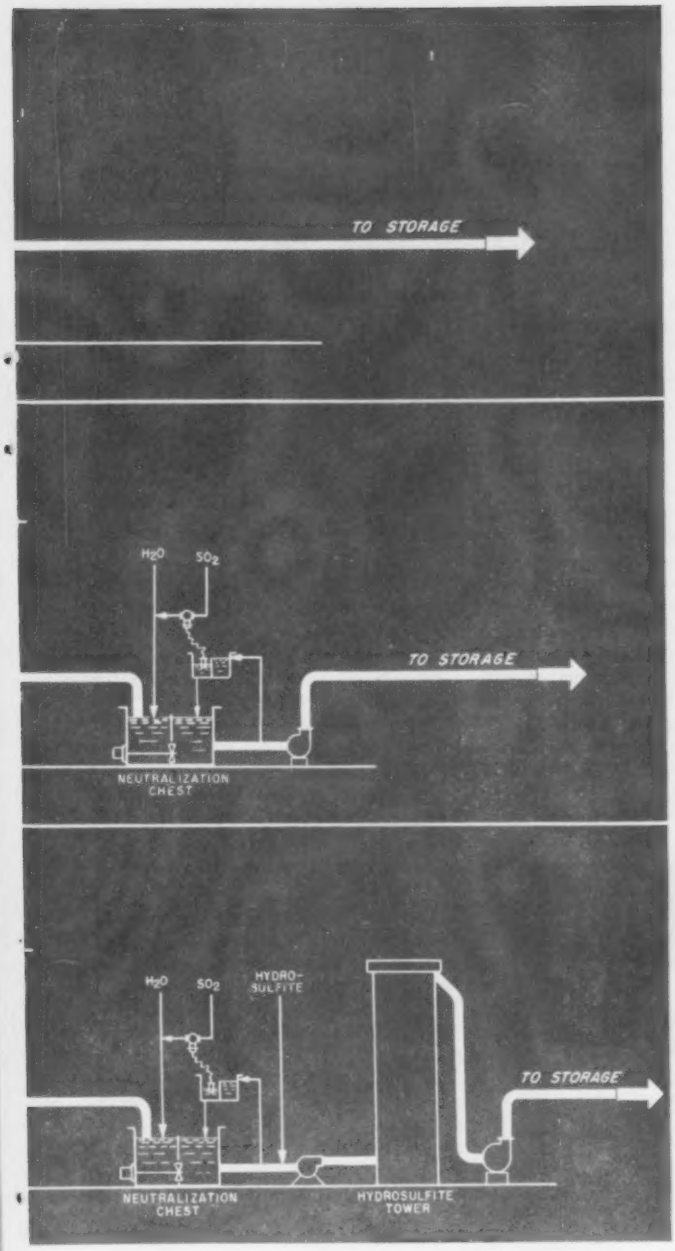
CALL ONE OF THESE MEN... LET HIM WORK WITH YOU IN MAKING THIS IMPORTANT DECISION:



Du Pont experience has helped many mills make the right choice between tower or refiner bleaching for cold caustic pulp based on brightness requirements. For example:

60 brightness. In process No. 1 at left, caustic-treated wood chips enter refiner and are bleached with "Albone" hydrogen peroxide and acid*. The use of acid controls the alkalinity of the bleaching reaction and assures maximum response from the hydrogen peroxide. Sulfur dioxide (SO_2) then neutralizes the bleached pulp and stabilizes the brightness obtained in the refiner. **Du Pont Patent Pending.*

65 to 75 brightness. In process No. 2 at left, pulp is refined, washed to remove caustic solubles, acidified with sulfuric acid to remove acid solubles, washed, and bleached in a conventional peroxide tower to desired brightness in the 65 to 75 range.

70 to 80 brightness. In process No. 3 at left, pulp goes through the same steps as in process No. 2. Then pulp is neutralized, and bleaching is completed in a hydrosulfite tower for maximum brightness in the 70 to 80 range.

Electrochemicals Department, Perozygen Products Division
Wilmington 98, Delaware

ALBONE® hydrogen peroxide — DU PONT — **SOLOZONE®** sodium peroxide

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

bleaching cold caustic pulp? Du Pont choice between tower or refiner bleaching investment and chemical costs.

Midwest Area
W. L. Lilke, Chicago, Ill.—INdependence 3-7250

West Coast Area
P. E. Kiefer, Portland, Oregon—CApital 7-1281

New York & Boston Area
C. R. Lombard, New York, N. Y.—LOngacre 3-6440

Southern Area
R. W. Hammond, Charlotte, N. C.—FRanklin 5-5561

Or call: N. J. Stalter, Wilmington, Delaware—PRospect 4-4698

PTJ NEWS OF SUPPLIERS

Warren Pump, Inc. has completed work on an expansion of pump test facilities, both production and experimental, at the main plant in Warren, Mass. The capacities of both the centrifugal pump and the rotary pump test departments have been nearly doubled by the completion of the project. Improved customer service in the form of shorter deliveries has been an immediate result of the expansion program, the company said.

Olin Mathieson Chemical Corp. will begin construction immediately on a $13,000,000 chlorine and caustic soda plant at Charleston, Tenn., Stanley de J. Osbourne president and chief executive officer, announced recently. Production is scheduled for the end of 1961.

The new facility, using the Mathieson stationary mercury electronic cell for the production of chlorine and caustic, will have a capacity of 180 tons a day, and be located on the Hiwassee River, a navigable tributary of the Tennessee River. Power for operations will be supplied by TVA.

Olin Mathieson now produces chlorine and caustic soda at Niagara Falls, N. Y., McIntosh, Ala., and Saltville, Va.

U.S. Stoneware Co. has announced two new additions to the staff of the Chamberlain Laboratories, the research and development center.

Richard H. Freyer has been named manager of the testing laboratories. A chemical engineering graduate of Tri State College of Engineering, Mr. Freyer was previously employed by Pratt & Whitney Aircraft Division of United Aircraft Corp. as a project and testing engineer.

Alan Corry has joined Chamberlain Laboratories' staff as research engineer. Formerly a research and development project engineer with the Electric Boat Division of General Dynamics Corp., Mr. Corry holds a master of science degree in chemical engineering from the University of Rhode Island.

Mathews Conveyor Co. has placed Alvin Wysocki in charge of the company's engineering-sales office at 4 Waltham St., Lexington, Mass.

Alvin Wysocki

E. K. Olson

A. E. Staley Mfg. Co. has named Eldred K. Olson as chief chemist of its quality control laboratory, succeeding Lisle R. Brown who retired September 1 after 36 years with the Decatur, Ill., company.

Mr. Olson joined Staley as an analytical chemist in 1938 following graduation from the University of Iowa with a bachelor of science and a master's degree in chemistry. He has been a senior analytical chemist in the control laboratory since 1955.

The M. W. Kellogg Co. has appointed Roy D. Rivers as project manager in the Pulp and Paper Group. Mr. Rivers studied chemical engineering at the Massachusetts Institute of Technology and is a specialist in start-up and operation of pulp and paper mills. Mr. Rivers supervised start-up and helped train operators at new mills located in various countries including India, Peru, and Brazil. Prior to joining Kellogg, he was mill manager for Champion Celulose, S.A. at Sao Paulo, Brazil.

Oakite Products, Inc., manufacturer of specialized chemical compounds, has announced the election of J. Justin Basch as second vice president, and William A. Baltzell as vice president.

Mr. Basch joined Oakite in 1925 as representative in Pittsburgh. He became Philadelphia division manager in 1930, and has been vice president in charge of marketing since 1958. He will continue to be responsible for the firm's marketing and research and product development programs.

Mr. Baltzell has been with Oakite since 1941, first as sales representative in Dallas, then as manager of

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as an ADHESIVE for
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- improved Retention of fibre and filler
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DARLING'S improved BONE GLUE

the company's southern division. In 1958 he was appointed industrial sales manager, which position he will continue to hold.

Clupak, Inc. Dudley B. Smith, manager of Foreign Licensing for Clupak, Inc., New York, N. Y., will visit 11 European and Scandinavian countries in September and October with field engineer Fred S. Breeland. The company has granted licenses to produce Clupak extensible paper to 16 paper companies in five different countries.

Their headquarters while overseas will be in care of Dieter O. Muller-Clemm, Moshainweg 14, Ravensburg, Germany, who is Clupak, Inc.'s European representative.

Farrel-Birmingham Co., Inc., Ansonia, Conn., has announced the appointment of Walter J. Hegedus as field sales engineer in the Pittsburgh area.

Mr. Hegedus replaces David Neill, who has been transferred to the Farrel home offices in Ansonia as manager of roll grinding sales.

Mr. Hegedus has been engaged in industrial sales work for the past decade since his graduation from

W. J. Hegedus

N. C. Ewalt

Fenn College, Cleveland, with a degree in mechanical engineering. Since 1958 he has been associated with the Farrel Akron office and, in his new assignment, will continue to make his headquarters there.

Walworth Co. has announced the appointment of Newton C. Ewalt as vice president, power plant sales and special projects.

Mr. Ewalt will be returning to the company he served for 33 years. He left in the spring of 1959 while holding the position of chief engineer. He had been employed by the Electric Boat Division of General Dynamics as the director of industrial sales. Mr. Ewalt is a graduate of Stevens Institute of Technology.

Becco Chemical Div., Food & Machinery Corp., has promoted Philip D. Caine, to sales promotion manager for the division, with headquarters in New York City.

Mr. Caine, formerly Becco's New England manager, will have charge of Becco's advertising and sales promotion activities, including market-development for new products and new applications of Becco's present line of peroxygen chemicals. He joined Becco in January 1947 and subsequently was assigned as a sales representative in the New England territory. Mr. Caine was promoted to New England manager for Becco in 1953.

Eastman Chemical Products, Inc., the Chemical Division, a subsidiary of Eastman Kodak Co., has established a new office in Buffalo, N. Y., located in the Snyder Square Building, 4498 Main Street. The new office will be under the supervision of George O. Trabue, who was formerly in the company's Cleveland office. Mr. Trabue will represent Eastman in the sale of its industrial and specialty chemicals in western New York, western Pennsylvania, and southern Ontario areas.

If it takes 7.05 milligrams of Bond Blue B to match a blue on laboratory sheets weighing 3 grams, how many pounds of dye per ton would you call for, to produce the same shade in the mill?

Warning: A simple transposal to equivalent pounds of dyestuff per ton of stock will give the wrong answer.

For a technical article discussing the problem of adjusting a laboratory dye formula to meet requirements of the individual mill, drop us a line. It is the latest Sandoz publication, designed to increase the industry's understanding of color and its application to pulp and paper.

SANDOZ, INC., 61-63 Vam Dam Street, New York 13, New York, ALgonquin 5-1700

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THE WRONG ANSWER IS EASY

SANDOZ

Sandoz

THINKS AHEAD WITH PAPER

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PJT ASSOCIATION NEWS

Fibre Box Ass'n. Schedules Speakers . . .

The program for the 21st annual meeting of the Fibre Box Assn., to be held at the Waldorf-Astoria in New York City on October 11 and 12 has been announced by Clarence F. Smith, president of the association, and vice president of Inland Container Corp., Indianapolis, Ind.

The opening session will be devoted entirely to the subject of merchandising and marketing with Dr. James E. Gates, dean, School of Business, University of Georgia, Dr. Theodore Levitt, lecturer on business administration at Harvard University, and Dr. Bernard B. Goldner, Professor of Industry, LaSalle College, as the principal speakers. The following day's session will feature a discussion of the corrugated box business in Sweden by Bengt Samson, managing director, Swedish Corrugated Box Assn., an economic forecast by Peter W. Hoguet, president of the Econometric Institute, and will close with an address by Dr. Murray Banks. The President's reception for members, guests and their wives will be held Tuesday evening October 11.

. . . Reelects Two Directors

Norman Albin, president, Triangle Container Corp., Chicago, and D. C. Shepard, Jr., general manager, Menasha Container Division of Menasha Wooden Ware Corp., Wisconsin, have been reelected directors of Fibre Box Association.

Mr. Albin has been in the corrugated shipping container business since 1934 after attending Northwestern University. In addition he is the president of Norman Albin and Assoc., equipment rebuilders for corrugated box machinery.

Mr. Shepard graduated from Yale University in 1950 and joined Menasha shortly thereafter. He has held positions as manager of a specialty department, production manager of the Menasha and Rockford, Ill., plants and was recently appointed to his present post.

Industrial Packaging & Handling Show Scheduled

The Maryland Division, Society of Packaging and Handling Engineers, will hold its sixth annual Eastern Industrial Packaging and Handling Show at the Fifth Regiment Armory, Baltimore, Md., on October 24-25.

Commercial exhibitors will display the newest developments and designs in industrial packaging materials, handling equipment and handling techniques. Exhibitions will be sponsored by trade and other organizations whose activities have a bearing on materials packaging and handling. Additional information may be obtained from the president of the Maryland Div., W. A. Yockel, c/o Davison Chemical Division, W. R. Grace & Co., Baltimore 26, Md.

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Reliability
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PACKING & PAPER STOCK CORP.
53-01 GRAND AVENUE, MASPETH 78, NEW YORK • EV-GREEN 6-2565
STATION & HALLECK STREETS, BOSTON 20, MASS. • GA-RRISON 7-5720
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Prices of Fibers

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	‡890.00/ —	‡850.00/ —	‡890.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡152.00/160.00				‡157.50/ —
Kraft, Blchd. Hdwd	152.00/ —		140.00/ —		
Kraft, Semi-bleached	140.00/145.00				
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unbichd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

‡ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED AUGUST 30

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	8.00/ —
3	7.75/7.00	$7.75/7.50	$7.50/7.00	7.75/ —
4	7.00/6.25	7.00/6.25	6.50/6.25	7.00/ —
5	6.25/5.75	6.00/5.75	6.00/5.50	6.50 & 7.25
6	5.75/4.75	5.25/5.00	5.25/5.00	4.25/3.75
7	4.75/4.00	4.50/4.00	4.75/4.00	3.50/ —

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Sept. 5	Sept. 5	Sept.	Sept.
No. 1 Mixed Paper	$ 7.00/ 9.00	9.00/ 11.00	6.00/ —	11.00/ 13.00
No. 1 News	12.00/ 13.00	10.00/ 11.00	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	18.00/ —	18.00/ 19.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	9.00/ —	12.00/ 14.00
Old Corrugated Containers	19.00/ 20.00	19.50/ 20.00	20.00/ —	21.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	35.00/ —	32.50/ 35.00
(Semi-chem. medium)	47.50/ —	47.50/ —	45.00/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	15.00/ —	32.50/ 35.00
White Newsblanks	47.50/ 52.50	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	57.50/ 60.00	60.00/ —	70.00/ 75.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	85.00/ 95.00
Hd. White nv. Cuts	100.00/105.00	105.00/110.00	90.00/ —	110.00/113.00
Col. Tab. Cards	42.50/ 45.00	42.50/ 45.00	45.00/ —	35.00/ 40.00
Manila Tab. Cards	62.50/ 65.00	62.50/ 65.00	65.00/ —	65.00/ —
No. 1 Col. Ledger	35.00/ 40.00	35.00/ 40.00	40.00/ —	27.00/ 29.50
White Ledger	48.50/ 52.50	50.00/ 55.00	50.00/ —	50.00/ 55.00
Mixed Book & Mag.†	— / —	— / —	12.50/ —	— / —
No. 1 Books‡	16.50/ 19.00	14.50/ 16.50	27.50/ —	10.00/ 14.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

POLAROID

Polaroid Corporation has increased its sales from $9 million in 1951 to $90 million in 1959. During this time we have introduced new and unusual photographic products developed by our engineering groups. The following are *new* openings for top-flight men in our Film Division.

Quality Control Engineers

We need individuals in quality control who can cope with the wide variety of control problems related to our various photographic products. They will design experiments and set inspection standards in addition to evaluating results of different measuring equipment and production machines.

The men we need have a degree in engineering or science with a strong background in statistics and 1-3 years experience, preferably in paper converting.

Process Engineers

We also need engineers to carry out testing programs and act as liaison between our research, engineering and production activities. They will collect and analyze data on existing processes and make recommendations for improving process control, product quality and new product development.

A degree in chemical or mechanical engineering and 1-3 years experience in process control, preferably on coating equipment, is required.

Polaroid is a young, dynamic company. Our plant in Waltham is one of the most modern in the country. Our benefits, which are exceptional, include a profit-sharing bonus plan, through which qualified employees received over 18% of their annual salary in 1959.

Please send resume in strict confidence to Norman Weber, Personnel Department, Polaroid Corporation, 1298 Main St., Waltham 54, Massachusetts.

Where RELIABILITY COUNTS MOST

—on PAPER MACHINES

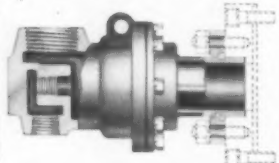
Patent No. 2,836,439

—Mill Installs 50!

BARCO TYPE C Rotary JOINTS

- **RESISTS SEAL RING BREAKAGE**—The spherical seal ring is under compression, not tension, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.
- **WIDE SPACED BEARINGS**—Two, instead of one . . . increased bearing area. No lubrication required. Lowest friction.
- **200 P.S.I. STEAM RATING**—Heavy duty service at *no extra cost*. Eight sizes, ½" to 3".

FOR FLANGE CONNECTION



NEW TYPE CF
Ask for Catalog Sheet 331

TODAY there is a better rotary joint for paper machine service. Barco's *Type C* (and new *Type CF)* joints give mills the kind of performance needed for efficient operation of new machines, as well as modernization of older machines.

The installation shown above is in a well-known Massachusetts mill. Fifty 1½" Barco *Type C* joints handle steam supply and syphon drainage of the dryers.

Barco joints are available from LOCAL STOCKS throughout the country. Standard series joints handle all steam pressures to 200 psi—one basic style for all services, single flow or syphon flow. *New Type CF offered for journal flange connections.* ASK FOR INFORMATION.

FOUNDED 1908 BARCO PRODUCTS BUILT BY ENGINEERS

BARCO MANUFACTURING CO.
533K Hough Street, Barrington, Illinois
The Only Truly Complete
Line of Flexible Ball, Swivel, Swing and Rotary Joints
In Canada: The Holden Co., Ltd., Montreal

PAPER PEOPLE

(Continued from page 44)

E. R. Frisby

Oxford Elevates Two Key Executives

Oxford Paper Co. has promoted two executives, Edward R. Frisby and Fred A. Clough, Jr., to higher positions, it was announced by William H. Chisholm, president of Oxford.

Mr. Frisby has been appointed to the position of vice president, industrial relations. He graduated from the Sheffield Scientific School, Yale University, in 1942, then served in the navy during WW II. In 1946 he joined the Oxford Paper Co. as a management trainee at the Oxford mill in Rumford. In 1947 he was made assistant to the personnel manager; in 1950, became labor relations manager; and in 1951, was made personnel director for the Rumford mill. In 1957 he was promoted to manager of industrial relations for the overall company and transferred to the executive offices in New York City where he will continue to be located in his new position.

Mr. Clough has been appointed director of public relations for Oxford. He joined Oxford in 1959 as assistant director of public relations. Prior to that he was Commissioner of Economic Development for the State of Maine for four years.

Graduating from Bates College in 1939, he saw military service during WW II, and for eight years was the director of the Maine Division of the United States Brewers Foundation where he was engaged in public relations.

Malarkey Paper Appoints Sales Manager

Harry D. Taggart has been appointed sales manager for Herbert Malarkey Paper Co., Portland, Ore.

He will be in charge of sales activity and distribution of the firm's complete line of roofing products in the Pacific Northwest states.

Mr. Taggart, who started in the roofing business in 1927, was building material sales manager for the Pioneer Division of the Flintkote Co. prior to joining Malarkey.

The Herbert Malarkey Paper Co., which began the manufacture of roofing materials early this year, has built and equipped a two million dollar plant on a 30-acre site located in Portland.

Strathmore Realigns Sales Staff

F. Nelson Bridgham, president of the Strathmore Paper Co., Springfield, Mass., has announced a realignment of the company's sales service organization.

H. Paul Kimball, who has been sales representative and manager of the mill sales office in West Springfield, now is district sales manager for the West.

William G. Holmes of West Springfield, formerly New England sales representative and associate manager of the mill sales office, now is district sales manager for New England and New York, except New York City, and also for western Pennsylvania and eastern Canada.

Henry C. Johnson of Westfield, formerly sales representative for the central west territory, now is district sales manager for the Midwest.

William A. McGilpin will continue as manager of Strathmore's New York office, and has been named district sales manager for the central Atlantic area.

Kenneth E. Fales of West Springfield, formerly sales representative in the southern territory, now is district sales manager for the southern territory.

Gordon Bullard of Holyoke has been named manager of the mill sales office at West Springfield under the new system.

Until recently, Mr. Bridgham said, field salesmen had divided their time between handling inquiries in the mill sales office and making field sales calls. They will now devote their efforts entirely to their sales territories.

The mill sales office, he said, is now handling only orders of a special nature. Routine orders will go directly to the order department. "We believe that this new arrangement for order handling will result in faster and more efficient processing of orders received at the mill," he said.

Just Arrived!

200 MORE

Giant-Size ACL WOOD CHIP CARS

TO SERVE THE PULP & PAPER INDUSTRY

Because of your overwhelming acceptance of our first 200-car fleet of jumbo-size 70-ton wood chip cars, Coast Line is building 200 more to serve you. These cars represent just one more of the many ways Coast Line works to meet the individual shipping needs of our friends and customers in the pulp and paper industry. We appreciate your patronage and will be happy to work with you at any time to help you solve your particular shipping problems. Why not give us a call.

"Thanks for Using Coast Line"

ATLANTIC COAST LINE RAILROAD

...serving the Southeast Coastal 6

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	July 30	Aug. 6	Aug. 13	Aug. 20	Aug. 27
1960	91.6r	88.9r	91.5r	92.4r	92.1
	Aug. 1	**Aug. 8**	**Aug. 15**	**Aug. 22**	**Aug. 29**
1959	94.3	95.7	96.4	96.7	95.4

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.0	96.9	97.8	96.3‡	81.1‡	—	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	94.0

‡ Preliminary

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	91.6	95.7	98.8	91.7	86.4	91.9	94.7
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	94.0	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	July 30	Aug. 6	Aug. 13	Aug. 20	Aug. 27
1960	94	94	92	92	92
	Aug. 1	**Aug. 8**	**Aug. 15**	**Aug. 22**	**Aug. 29**
1959	98	98	96	95	96

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	77	—	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM % Activity	THIS WEEK ENDING Aug. 27, 1960	LAST WEEK ENDING Aug. 20, 1960	CUMULATIVE TO DATE Jan. 1 to August 27, 1960, incl.
Total	92%	92%	91%
Containerboard—Domestic Use.	313,476	314,607	10,493,184
Liner	167,348	169,897	5,398,100
Corrugating Material	115,205	115,727	3,608,718
Chip & Filler Board	47,273	49,308	1,613,903
Boxboard—Domestic Use	4,870	4,862	175,479
Folding	97,186	97,164	3,266,704
Set-Up	58,224	61,017	1,951,441
Special Food Board	11,692	10,925	372,568
Other Paperboard	27,270	25,222	942,695
Containerboard Type	48,942	47,546	1,828,380
Boxboard Type	21,809	22,166	875,558
Total Orders	27,133	25,380	952,822
Received	318,170	283,315	
Unfilled End of Week	430,767	426,145	

PJT NEW LITERATURE

ABC's of Defoaming

Tells where and how silicones actually reduce processing time and maintenance costs; increase production capacity and efficiency. Also lists the silicone defoamers permissible in foods. Manual. Dow Corning Corp., Midland, Mich.

Chlorine Dioxide Bleaching Tower

Describes the new concentric bleaching tower design which provides high density chlorine dioxide bleaching of kraft and other pulps in a single compact structure. Bulletin 3307. Dorr-Oliver Inc., Stamford, Conn.

Caterpillar 977H Traxcavator

Company describes this as the machine that "never stops moving." Features include a new turbocharged engine with increased horsepower, a new power shift transmission coupled with a speed range selector to give four speeds forward or reverse, new dry-type air cleaner and hydraulic system with greater pry-out force. Form 33790. Caterpillar Tractor Co., Peoria, Ill.

Emerson Claflin Model 303

Describes this continuous conical refiner for pulp and paper mills. Also provides engineering drawings, sectional photographs and performance features. Bulletin C-560. Bolton-Emerson, Lawrence, Mass.

Electrik Tel-O-Set Specification FS-301-9

Describes these new indicators and indicating control stations which continuously indicate and record the stadard output of any Electrik Tel-O-Set transmitter or transducer. In all, tran-

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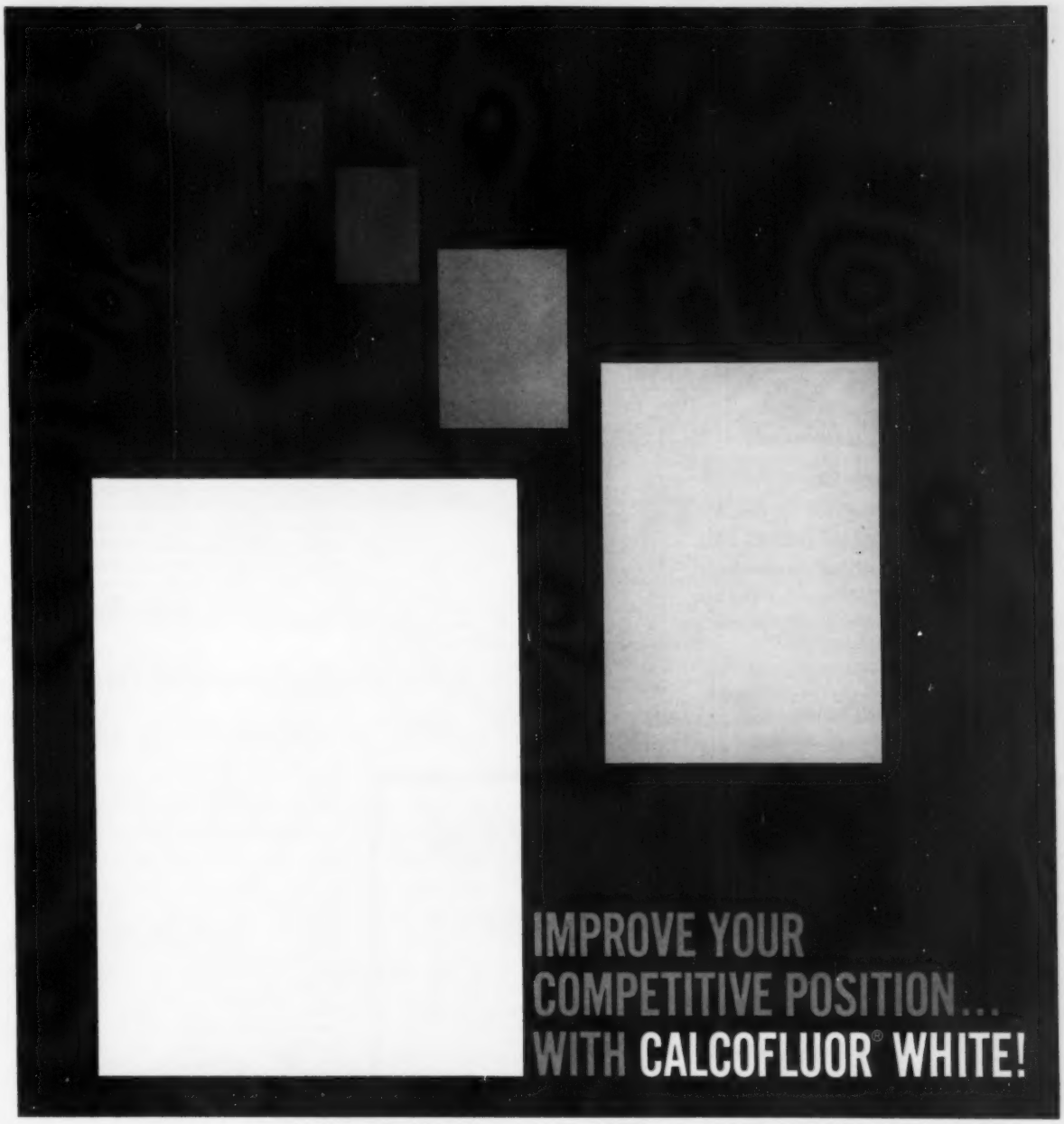

Here's the brightest way to diversify your line... and multiply your sales! Cyanamid's Calcofluor White helps provide that brilliant, "whiter-than-white" base that makes your customers' printed jobs look *better*, work *harder*. • When *you* add Calcofluor-whitened papers to your line: • **You focus sales attention on all your white grades... • You *capitalize* on the new trend to *whitest* white... • You clinch *new* sales to *old* customers ... • You create *new* customers.** • Calcofluor White will help you sell the paper that does the *most effective selling job for* your customers.

CALCOFLUOR WHITE gives you the added "plus" that is so desirable today. It is available to all mills in convenient, easy-to-use form. And American Cyanamid Company "know-how" is ready to create new papers or "dress up" old ones. May we help you?

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PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

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When planning new pulp and paper facilities consider our "package" contract. It provides a single source for site study, design and construction.

Ask for details.

THE RUST ENGINEERING CO.

PITTSBURGH 22 • BIRMINGHAM 3

sistorized power supplies make possible true two-wire transmission from field mounted devices. Minneapolis-Honeywell Regulator Co., Wayne & Windrim Aves., Philadelphia 44, Pa.

Fluid Power News 13

Illustrates and describes the solution of varied engineering problems through the application of fluid power equipment. Of particular interest is the item on precision speed synchronization and control of new extensible paper machine section drives. Oilgear Co., 1560 W. Pierce St., Milwaukee 4, Wis.

How Silicones Work For the CPI

Cites how various forms of silicones help design, process and maintenance engineers expand capacity, cut costs, lower maintenance, reduce downtime, increase reliability, and improve job conditions. Manual 1-119. Dow Corning Corp., Midland, Mich.

Hankison Refrigifilter

Includes complete specifications, capacity chart and installation procedure for the F-30 model which is designed to protect medium capacity pneumatic systems from destructive moisture, oil vapors and other contaminants. Bulletin 9100. Hankison Corp., College & Pike, Canonsburg, Pa.

Lightnin Mixers

Bulletin B-520 covers their portable propeller type mixers and B-521 covers their fixed mounting propeller type. These are new designs which are for the processing industries. Mixing Equipment Co., Inc., 170 Mt. Read Blvd., Rochester 3, N. Y.

Lorain Moto-Crane Model MC-760

Discusses two features of this model—its exclusive "Power-Set" outriggers that set up in about one minute and "Shear-Ball" connection, which connects the turntable to the carrier. Also shows pictures of the crane in action. 12p. Catalog. Thew Shovel Co., Lorain, Ohio.

Magnetic Gages

Covers in detail the features, models, construction data and how these gages operate. They are designed for use where glass and its gasket cannot be tolerated and where a sealed container for the liquid is preferable. Catalog 388. Jerguson Gage & Valve Co., 80 Adams St., Burlington, Mass.

Servicing the Clarklift Hydratork

A slide film, with viewing time of 43 minutes, shows how to keep the Hydratork transmission in excellent operating condition is available free by writing to Slide Film Dept., Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich.

Silicone Water Repellent

Provides product data on SS 4024, a solvent solution of silicone polymers and other film forming components, which imparts excellent water repellency to leather, paper and textile products without catalysis or thermal cure. Product Data Sheet. General Electric Co., Silicone Products Dept., Waterford, N. Y.

Wood-Chip Transport Body

Designed for transporting bulky, lightweight materials, the WC-8 has self-unloading conveyors the entire width of the bottom, driven by a common shaft at the rear of the body for fast unloading of materials. Form A-447. Baughman Mfg. Co., Jerseyville, Ill.

What is Molykote?

Discusses molybdenum disulphide lubricants which are available in powder form, as greases, as resin bonded coatings, as dispersions, or in a variety of special forms. Bulletin 124. Alph-Molykote Corp., 65 Harvard Ave., Stamford, Conn.

Alvin H. Johnson & Co.

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Consulting and Designing Paper Mill Engineers

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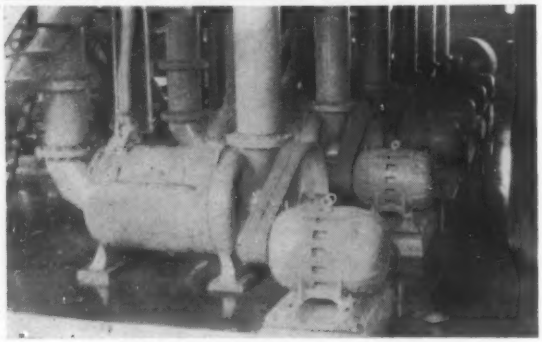
PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

REPORTS APPRAISALS ESTIMATES AND SURVEYS



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- Replace flat screens with APMEW centrifugals 3 to 1
- Occupy 90% less space
- Use less H.P.
- Produce more salable paper

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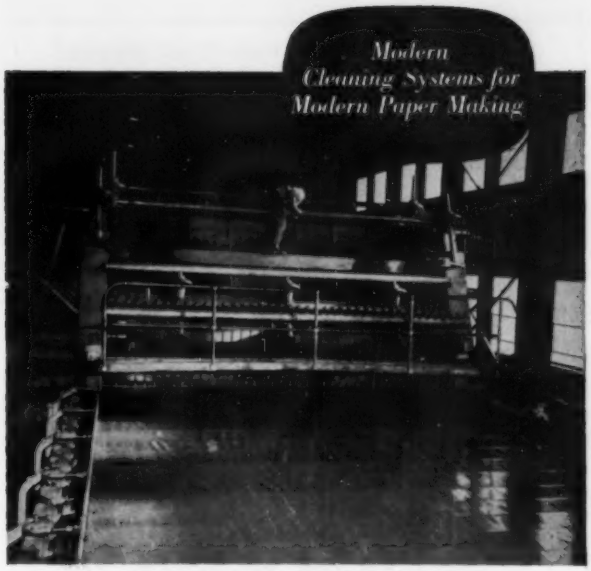
APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.



Cleaning Fourdrinier wires using Oakite flow-on system and Oakite Composition No. 45

Speed cleaning from wet-end to dry

with one double-action Oakite material

Double-action Oakite Composition No. 45 has proved to be one of the most versatile materials available to the paper industry. It combines solvent and alkaline cleaning power to penetrate and strip away the soils most commonly encountered in paper mills that use soda, sulphite and sulphate produced stock.

Non-foaming, easy to prepare, free-rinsing and with no offensive odor, Composition No. 45 is a favorite for cleaning:

- **Pulp Washers**
- **Pulp Screens**
- **Filter Beds**
- **Stock Preparation Units**
- **Dye Equipment**
- **Save-Alls**
- **Fourdrinier Wires**
- **Couch Rolls**
- **Press Rolls**
- **Cylinders**

Try Oakite Composition No. 45 on your tough jobs, wet-end or dry. Your local Oakite man will be glad to recommend cleaning systems and methods using this hard-working, soil-stripping material. Or write for Bulletin B-5057. Oakite Products, Inc., 48A Rector Street, New York 6, N. Y.

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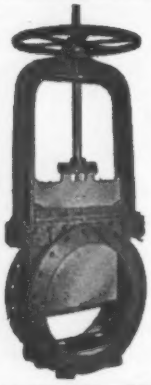

RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
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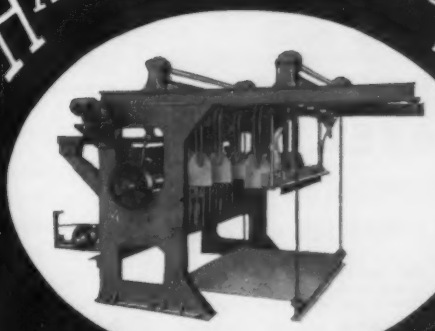

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Experienced Fine Paper Maker to operate three machine mills producing wide variety of fine grades. Location in one of the finest sections of the Northeast. Age range 40-62 years with minimum of 15 years fine paper making experience. Salary commensurate with background and ability. Address Box 60-181 care Paper Trade Journal.

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Challenging spot at year-old Midwestern Plant of nationally known multi-plant chemical manufacturer. Job entails assisting Plant Manager in all phases of manufacturing management, including formulating plant policy, handling employee relations, etc. Also involves the supervision of approximately 100 employees through line supervisors.

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You are, if you have three to ten years of manufacturing experience, some of which is in supervision. You are, if you also have a Chemical or a Mechanical Engineering degree. Most important, you must have potential for growth into top management.

All applicants will receive the courtesy of a reply.

Send resume in complete confidence to Box 60-179 care of Paper Trade Journal.

S-12

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As builders of papermaking machinery including complete machines of both cylinder and Fourdrinier types, our record as the fastest growing company in our industry continues. We have a need now for an experienced papermill engineer to work with our papermaker-customers in the Minnesota-Wisconsin-Michigan area. He could reside in either Wisconsin or Michigan, preferably Wisconsin.

For a man interested in helping papermakers solve mill problems, supervising installations and working with an aggressive, experienced, management team, we believe this is an unusual opportunity.

Salary is open and fringe benefits are excellent, but do not apply unless you have had at least five years of direct, practical experience in paper mill engineering.

Please address your reply to:

Mr. H. C. Newcomb

THE MANCHESTER MACHINE CO.

MIDDLETOWN, OHIO

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BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—9 roll 84" face
1—3 roll 84" face
1—4 roll 72" face. (Extra heavy duty)
1—5 roll 82" face.
1—5 roll 86" face

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Casthage Chipper. Anti-friction bearings, with motor

COATER
1—42" Chapman Extrusion Type Coater

CONSISTENCY REGULATOR
1—Poirier Stainless Steel, new condition

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS
1—30" diameter x 72" face.
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face.
4—36" diameter x 84" face complete with vats
1—42" diameter x 96" face
2—42" diameter x 106" face
2—60" dia. x 170" face.

DRIVES
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)

DRYERS
1—16" diameter x 54" face (steel).
1—28" diameter x 84" face.
1—28" diameter x 48" face.
2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit.
1—36" diameter x 44" face.
5—36" diameter x 76" face.
2—36" diameter x 84" face.
14—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings
2—48" x 60" face frames, gears & bearings
1—48" x 96" face.
6—48" diameter x 130" face.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—48" 2 roll Meadows Embossing Calender
1—51½" 3-roll Smoothing Calender.
1—57" 3-roll Embossing Calender.
1—62" 2-roll Embosser.
1—90" 2-roll Smoothing Calender.

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—12 Plate "Packer"
4—14 Plate IMPCO, bronze vats

JORDANS
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Monarch, Type D, anti friction bearings.
1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.
1—#6 Miami, anti friction bearings.

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
1—Washer for 5 lb. Beater.
1—24" Saveall, stainless steel.
1—20" Fourdrinier Wet End & Press Section.
2—8" x 8" Valley Sheet dryers.
1—12" x 12" Valley Sheet dryer.
1—18" x 20" Williams Sheet Dryer
1—15 lb. E. D. Jones Beater.
1—Noble & Wood Cycle Beater with motor & stand.
1—Greene Freeness Tester.
1—Cady Micrometer.
1—High speed Jordan, anti-friction bearings.
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1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.

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1—Bird Centriffier built 1958, new condition
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2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 10" x 74".

PULPERS
1—#1 Jones Pulp Master.

PUMPS
1—Economy Fan Pump 6000 g.p.m., 20' head, 50 h.p. motor.

REELS
1—72" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—116" Downingtown, 2 bowl, anti friction bearings.
1—123"—3 bowl Revolving Reel.
1—134" 2 drum.

REFINERS
1—Rice Barton Dynofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor.
2—36" Bauer double disc #185E Refiners, each with two 100 h.p. motors.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screens, copper vats.
7—Trimbey, Senior Knotter Screens.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—#6 Bird Saveall.
1—24" Continuous Saveall, stainless steel.
1—LaMort 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
2—Savealls, Rice Barton, cast iron vats, cylinder molds 48" diameter x 128" face, complete with 18" diameter couch rolls, all in very good condition.

SHEETERS
1—44" Spot Sheeter Complete
1—60" Hamblet with layboy.

SHREDDER
1—16" "Swift" Paper Shredder.

SLITTERS & WINDERS
1—26" Cameron Type 26-2A, complete constant tension & electric eye
4—42" Cameron Type 6.
1—42" Cameron Type 26-2A.
1—42" Cameron Type 40-2.
1—50" Cameron Type 6.
3—52" Cameron Type 9
1—52" Cameron Type 6
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—64" Waldron, Shear cut.

SLITTING DEVICE
84" Quick change slitting device shear cut, complete

STOCK PUMP
1—12 x 20 Shartle Triplex, with spare parts.

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1—Downingtown suction couch shell only, 127½" face 26" diameter.

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1—Beloit, 36" diameter x 246" face, SKF bearings.

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SUCTION PRESS ROLL
1—Sandusky 18" dia. x 138" face Suction Press Roll.

SUPER CALENDER STACK
1—9 Roll 56".

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1—72" Hudson-Sharp (Surface type winder).

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2—#1 Nash Hytor.
2—#3 Nash Hytor.
1—#4 Nash Hytor
1—#7 Nash Hytor, with 75 h.p. synchronous motor.
1—H-3 Nash.
1—K-5 Nash.
2—L-4 Nash.
3—L-5 Nash.
2—Connersville, 14 x 20.

VATS
2—Brand new Downingtown Iron End Vats, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

WET MACHINES
1—72" Rogers Wet Machine.

YANKEE DRYER
1—60" diameter x 92" Face, anti- friction bearings.
1—12 ft. diameter x 181½" face.

Paddy Ross, Pres.

J. J. ROSS COMPANY

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Control Department of progressive paper company has an opening for a Chemical Engineer with at least two years experience in the industry.

Salary will depend on education and experience.

Send résumé to Personnel Department.

St. Croix Paper Company
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COATING SUPERVISOR

Recent promotions within our organization have created an opening for a man to head our research, development, and mill studies on production of machine-coated bleached board. Knowledge and experience with clay coatings are required. The person selected must have ability to lead a program in developing coating processes and new types of functional coatings. This is an outstanding opportunity for the right man. Write to:

Personnel Department
Riegel Paper Corporation
Carolina Division
Acme, North Carolina
S-19

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Permanent openings available in Kraft and Tissue Converting areas for Mechanical Engineers. Must have at least a B.S.M.E. degree with 2 to 5 years experience in machine design. Position consists of maintenance engineering as well as design. Send complete resume or call Personnel Department, Hudson Pulp & Paper Corporation, P. O. Box 919, Palatka, Florida.
S-26

TOUR BOSS

Eastern one-machine cylinder board mill seeking energetic, stable Tour Boss. Will consider experienced machine tender. Excellent opportunity, salary and benefits. Write to:

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We are looking for a young salesman with a paper background to work in the midwest out of our Chicago office. Position is newly created because of sales expansion in the paper industry and can lead to greater responsibilities. Products include defoamers, surfacants & etc.

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E. F. Drew & Co., Inc.
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WORKING FOREMAN

Small folding boxboard cylinder mill in midwest. Practical papermaker with mechanical background and capacity for work. Give qualifications and salary requirements in first letter.
Box 60-177 care Paper Trade Journal.
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***Production executive* — conversion of boards, paper & film. Well versed in heading up all production functions in an organization; or reorganization deal. Multiple manufacturing units. Employed — wishes change for challenging opportunity. Box No. 60-168 care Paper Trade Journal.**
S-26

For Sale

FOR SALE
BARGAIN PRICES

1—110" S.S. Head Box. Complete with Flow Rolls and Stands.
1—110" Pope Reel. B. & S.
1—111" Size Press, A.F. Bearings. B. & S. Spare Rolls.
2—Imco, Standard Deckers, Design #6. 40" Dia. x 96" Cylinder Mold, Steel Tank, C.I. Ends. 10" Inlet, 12" Discharge. Couch Rolls—24" Dia. x 97" Face. Roller Chain Drive.
1—Miami #2 Jordan, New S. S. Fillings.
1—Miami #1 Jordan, C. I. Fillings.
1—E. D. Jones Majestic Jordan, S. S. Fillings.
2—K-S Nash Vacuum Pumps.
1—45" Seybold Dayton Trimmer.
1—65" Seybold Dayton Trimmer.
1—75" Seybold 20th Century Trimmer.

The above machinery is in excellent condition and we can quote you very low prices.

WRITE—WIRE—PHONE
RUDERMAN MACHINERY EXCHANGE
GOUVERNEUR, NEW YORK
Telephone 333 - 334 TF

FOR SALE—3—Nash size H-6 Vacuum Pumps. Equivalent to New. BRILL EQUIPMENT COMPANY, 35-65 Jabez Street, Newark, New Jersey. S-12

FOR SALE—1—Used IMPCO rubber covered washer cylinder with valve—8 ft. diameter x 10 ft. face. Contact Bergstrom Paper Company, Neenah, Wisconsin, for further particulars. S-19

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1—51" 3-color Flexo Press
1—42" 4-color Cottrell Heinrich Flexo Press
1—42" 4 color Hudson Sharp Central Impression Cylinder Flexo Presses
1—42" 4-Color Crawford Flexo Press
1—40" 6-color W & H Flexo Press
1—40" 4-color W. & H. Flexo Press
1—33" 6 color Modern Clipper Flexo Press
1—33" 4 color Wolverine Hydro-Printer
1—32" 4-color Schmutz Bag Press
1—25" 3-color Potdevin Flexo Press
1—24" 2 color Manhasset Flexo Tailprinter
1—24" 5-color Kidder Calloprinter
1—22½" 3-color Chambon with Die Cutter
1—14" 4-color Waldron Gravure Press

POWER PAPER CUTTERS

Seybolds: Dayton: 35", 56" & 84"; 20th Century: 64", 54" & 38"; Holyoke: 58"; 12Z; 85"; 10Z: 65", 50", 44"; 7Y: 24"; 3Y: 32"; Oswegos: 36"; Dexter: 50", 44" & 32"; C & P: 44"; National: 44".

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1—72" 10-11 & 1—72" 10-10A
1—62"—28-3BT
1—52" Type 10
1—52", & 1—42" Model 24-7
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1—42", 50" & 62" Type 6
1—32" and 42" 26-3A's

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2—82" Langston: 1—"BA" & 1—"A"
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1—60" & 1—40" Fales Model "C"
1—40" & 1—52" Fales Model "B"
1—60" Langston Type A
1—60" Inman With Reeves Drive
1—52" Moisel (Shear-Cut)
2—40" Beck Razor Blade Slitters
1—40" & 1—60" Kidder SH, 40" rewind
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1—24", 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN.

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1—Battle Creek Poly Twin Toilet Roll Wrapper (New)
1—Facial Tissue Machine Complete
4—81" P.C.M. Company's Tissue Converters
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1—34" Roto Bag Weldmaster side-welded Poly Bag Machine
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1—24" Schultz Automatic Rewinder & Wrapper
1—80" Coater & Laminator
1—60" Perkins Squeeze Roll Waxer
1—60" Perkins Creper
2—36" & 1—45" CSH Sack Sheeter
1—78" & 1—94" M & W Sheeter & Layboy Hamblet Sheeters—32", 48", 64", & 104"
1—Simplex 7-24 Pouch Machine
1— Matador Model #31 Bag Machine
2—PO-5 & 1—PO-2 Roto Bag Machs.
1—Beasley French Bag Machine
1—Model 4-S & 1—Model 5 Potdevin Sack Machines
2—38" x 24" 4-Post Seybold Die Presses
5—Sheridans: 64" x 44", 60" x 38", 50" x 24", 44" x 22" & 36" x 18" and 1—Ford-Smith: 48" x 40"
1—V-Shape 6 oz. Paper Cup Machine
Embossers 48", 38", 32" & 80" Heavy Duty Hudson Sharp Tister-Embosser
1—55" Waldron Embosser
1—40½ Hudson Sharp Toilet Interfolder
1—30" x 44" Hartford & 1—28" x 41" Thomson Cutter Creasers
1—44 x 22 Sheridan Helical Gears
1—27" x 44" Dietz Single-Fold Towel Folder
1—70" Waldron Automatic Unroll Splicer
1—55" and 1—64" Super Calender Stacks
S-12

FOR SALE

240" x 80 ft. Pusey & Jones removable Fourdrinier with Slice, perforated roll, top press rolls 32 x 240", two Beloit rubber covered suction press rolls 35 x 235", 9 roll calender, reel, unwind stand and winder. Equipment last operated at 1200 fpm on Kraft. Dryer frame also would be available.

200" x 65 ft. Beloit removable Fourdrinier with 30" Beloit cantilever couch, 1 press anti friction bearing, 12 ft. Beloit Yankee dryer, 181" face, Code Tested 125 lbs., 2 roll calender stack with rolls, 200" face, Beloit reel with 4 anti friction reel cores (reel 200" face) takes 60" roll, type 19 Cameron, 186" face.

210" & 90 ft. Pusey & Jones removable Fourdrinier. Fourdrinier Part new 1953. Pressure head box, Valley slice with new Valley lip, never used. Also 40" Beloit suction couch roll, 2 Beloit suction presses with 35" diameter rolls, reel, unwind stand and winder (type 20 Cameron) with lowering table and MG set. Also dryer frame available. Equipment last operated at 1200 fpm.

170" x 70 ft. Rice Barton Fourdrinier, 30" couch, 2 suction presses, section 32 Rice Barton dryers 60" x 157½" with double deck frame, gears, bearings, top and bottom felt equipment, four 48" felt dryers, 7 roll anti friction calender, 5 roll calender, Pope reel with 7 anti friction reel cores, unwind stand, type 18 Cameron winder.

FRANK H. DAVIS CO.

P. O. Box 231 Cambridge, Mass.

S-12

FOR SALE

COMPLETE LOG AND PULP-WOOD DEBARKING PLANT LOCATED IN SOUTHERN NEW HAMPSHIRE — Includes Anderson Debarker, Live Log Deck, Log Stop and Loader, Three-Saw Slasher, Two 100-Pound Joy Compressors, Conveyors, Sawdust Blower, Stacker and all Motors and Electrical Equipment Necessary to Operate Same. Motors vary in Size from 3 to 40 H.P. Much of this Equipment was in Service Less than 4 Years and All is in Excellent Condition and Ready to Operate.

Heated Steel Building, 7¾ Acre Site and Private Railroad Siding Also Available.

For Complete Details Write Box 60-185 care Paper Trade Journal.

S-12

FOR SALE OR LEASE

Tissue mill located in New England for sale or lease. Excellent condition; mill complete and ready to run. Recent renovations and capital expenditures.

Principals only
Box #60-184
care Paper Trade Journal

O-3

GOVERNMENT BIDS

PROPOSALS FOR THE SALE OF UNSORTED WASTE PAPER.

U.S. GOVERNMENT PRINTING OFFICE,
WASHINGTON, *D.C., September 6, 1960.*

Sealed proposals will be received at this Office until 10 o'clock a.m., E.D.S.T., September 20, 1960, for the sale of Unsorted Waste Paper which may accumulate at the Government Printing Office during the three months beginning October 1, 1960. The right to reject any and all bids and to waive defects is reserved. Detailed specifications of the estimated quantities to be sold, accompanied by blank proposals and giving regulations with which bidders must comply, may be obtained by addressing

RAYMOND BLATTENBERGER,
Public Printer.

S-12

L O O K through the columns of the CLEARING HOUSE

Sales Representation

SALES REPRESENTATION

Will enter into manufacturer's sales agency business October 1, at Memphis, Tennessee. Contemplated territory — Memphis—Nashville—Little Rock and Jackson, Miss.

Experience—25 years selling to wholesale grocery-paper-automotive and hardware, also super markets and variety chains. Will limit operations to 2 or 3 reputable manufacturers. Can give best of references. Correspondence invited.

Address Box 60-182 care Paper Trade Journal.

S-12

WHEN REPLYING to advertisements containing box numbers, please mention that box number in your address. The figures in the lower right hand corner of advertisements are NOT box numbers,—they signify the expiration date of that particular insertion.

Wanted

WANTED FOR IMMEDIATE PURCHASE

One used Saveall Bird Size 7A or Equivalent Gravity Unit. Good Condition. Forward particulars to Box 60-176 care Paper Trade Journal.

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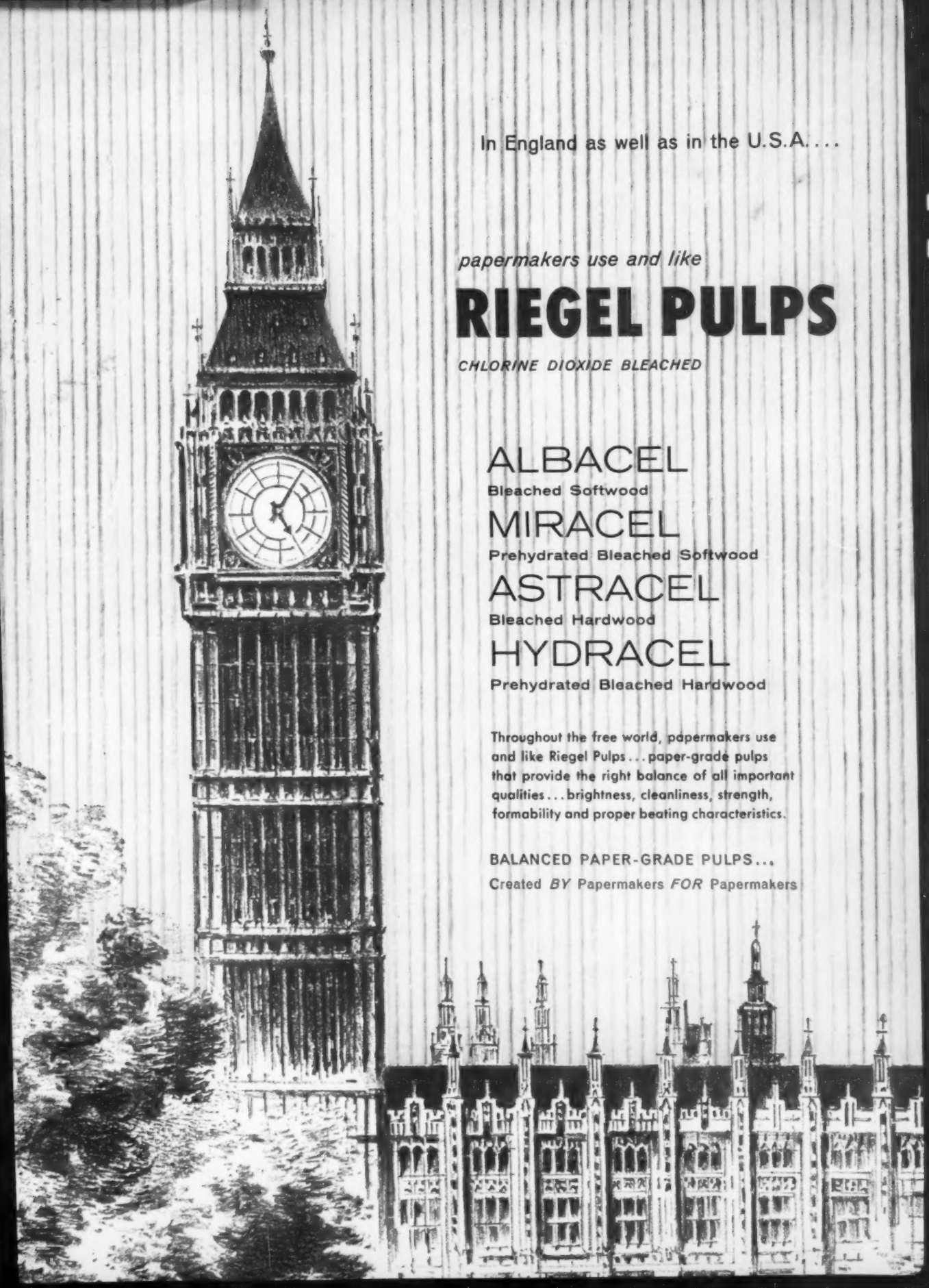

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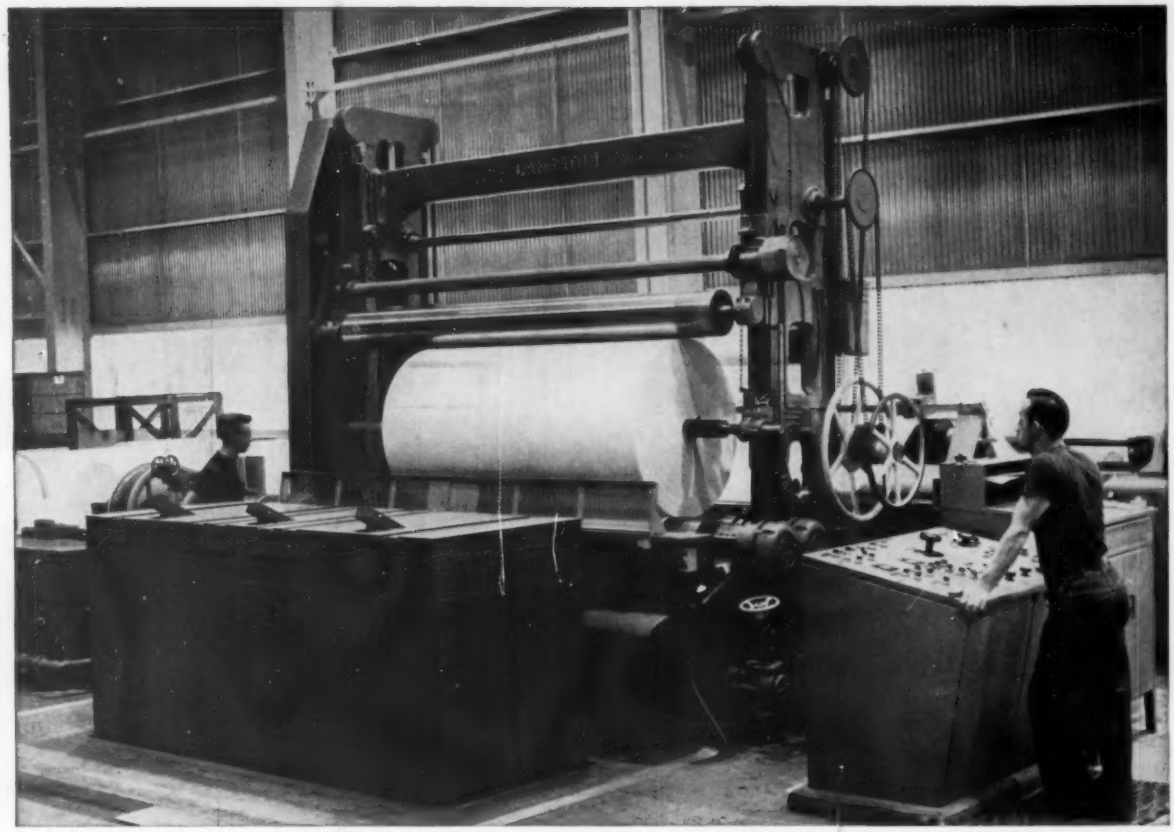

One of the two 104-in. Langston Slitters and Winders in the Glatfelter mill completing rewind. Roll drop table in foreground is up, ready to receive roll when ejected by the winder, and chocks are in raised position to stop the roll. Note console incorporating all major indicators and controls.

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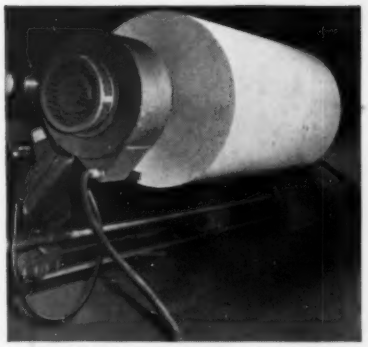

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